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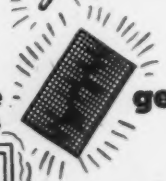
Service  **get results . . . . Let us know** **when you want**

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CALIFORNIA
OIL WORLD
and Petroleum Industry

THE AUTHORITY ON THE CALIFORNIA OIL INDUSTRY

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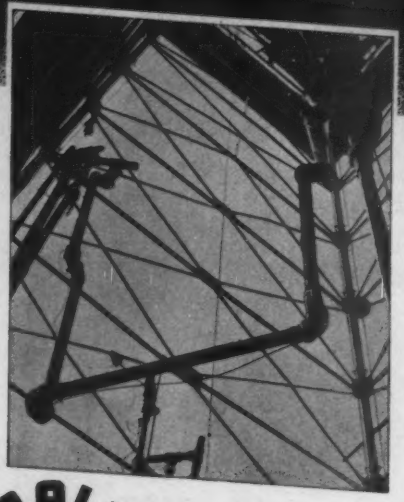

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The Fight Is On

Danger that the oil industry will lose its depletion allowance, by threatened Congressional action at the present special session just closed or at the regular session immediately following, has brought the industry into close cooperation to protect its own interests.

Arguments for the allowance, developed by the Mid-Continent Oil & Gas Association, are published elsewhere in this issue. These arguments have been adopted by the California oil industry as the best yet available.

Aside from the fact that the oil industry is apparently awakening to the need for being prepared for possible adverse action on the part of the government, which in itself is indicative of a more intelligent attitude of the industry, it is also encouraging to note that the industry of the whole nation—not of the Mid-Continent, not of Texas, not of California, not of one district or another, but the entire domestic oil industry—is uniting in a common fight, and has adopted a nation-wide, coherent, workable method to combat a common danger.

It appears that progress in public relations is being made. May there be many more campaigns in which the whole industry, as one unit, takes part. If the habit is formed, there is a chance that in the future, when other legislative dangers arise, the industry will know how to present its case to the government, to the public, and to itself, with the result that it will be given some protection, and that the legislators will not be able to continue their apparent belief that the oil industry is just an oversized cow which is powerless to resent being milked.

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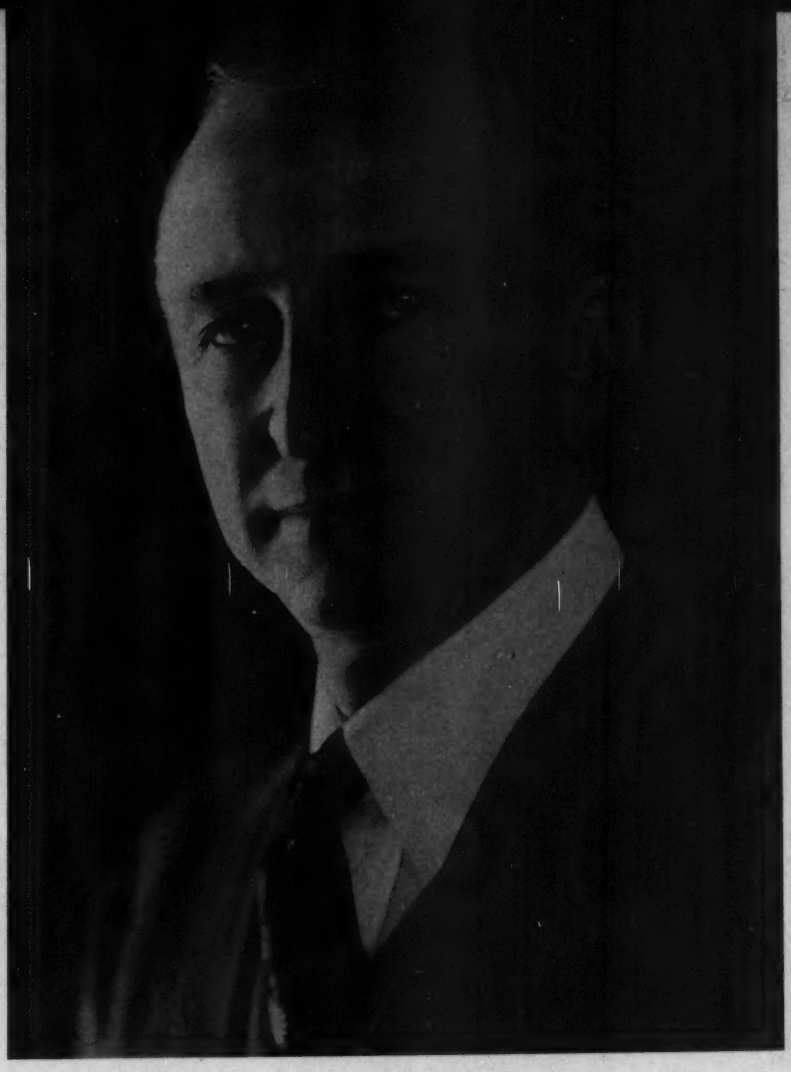
This is the third installment of the story of The Texas Co., and continues the series being presented by the California Oil World and Mitchum, Tully & Co., California investment dealers, on the companies making up the California oil industry of today.



"Booky" Fuqua

The Texas Company, California

Chapter III—Filling Out—1912-1920

By Eugene I. Harrington

From the day of its birth in September, 1912, the California Petroleum Corporation took its place in production alongside Standard, Associated, Union and General as one of the major oil companies in California. The new $35,000,000 company, as we have seen, was the result of a merger of American Petroleum Company, Niles Lease Company, American Oilfields Company, and Midway Oilfields Company, Ltd. Each of those four producing companies had successfully passed through the difficult age of adolescense and now, grown up and united in one cohesive unit, seemed destined for greatness. The corporation's properties were proven and eminent oil geologists had conservatively set their value at more than 32 million dollars. Production contracts that had been concluded with Union, Associated and the Independent Oil Producers Agency showed the company an excellent return on the crude that flowed from its 120 wells. And standing at the controls of the new unit was a man who had earned the respect and admiration of the entire oil industry. That man was Tom O'Donnell; he had been responsible for the success of the four component companies; he had tested their strength and had selected and trained the men who had brought them along, safely and surely, up to this point. Tom O'Donnell knew the materials out of which the new and greater company was built.

A Meeting To Be Remembered

Knowing his materials, he had confidence in properties, men—and the future. Immediately after the forming of California Petroleum he called a meeting in Coalinga of the men on whom he felt he must depend to fulfill the optimistic hopes of further progress. The field men who came to Coalinga on that autumn day looked upon O'Donnell as one of them; he was a production man by training and by choice and he had worked alongside many of those men in the Ventura, Los Angeles and Coalinga fields.

That meeting was held a quarter of a century ago but the memories

Tom Crumpton

of some of the men who were there have not been dimmed through the intervening years. Perhaps it was O'Donnell's strong, power-charged personality, or it may have been the things he had to say; at any rate, there are men in The Texas Company of California today who remember that meeting clearly. O'Donnell had the Irishman's proverbial gift of gab and in his rich, booming voice he pictured his plans and hopes for the California Petroleum Corporation in words his fellow workers understood.

"I've got a hunch," O'Donnell said "that if I ever let a sawbones open me up he'd find oil instead of blood in my veins. I've lived it, dreamed it and worked in it for so long that I'm sure it's a part of me. Don't any of you fellows let this high stiff collar I'm wearing today fool you—this meeting is just as much an occasion for me as it is for any of you. I called you boys together because I wanted to talk over some of my half-formed plans with you and because I thought we ought to get together and celebrate.

"I guess Tom Crumpton and 'Booky' Fuqua have told you a little something about the new set-up, so I won't have much to say about what's already happened. Anyway, we're all a lot more interested in what's going to happen, or, at least, what we hope is going to happen. In the first place, we're one big outfit now and that means we've got a real chance to go places. It also means that we're matched against some big league competitors and that everybody in the oil business will be watching us and expecting us to do big things. Well, we're not going to disappoint them if I can help it and I know I can depend on every one of you to do his part.

Policy Reiterated

"My plans call for continued development of our properties. You all know that means hard work, long hours and all around tough sledding, but you also know that it means real rewards if we produce. Before we go any further, let's clear up one point; my position in the new set-up is exactly the same as it was in the old one and I'm going to follow the same policies that most of you here are familiar with. Everybody has a job and everybody's going to keep his job or get a better one. I had that understanding before I took over last month; you fellows are my friends, I've worked with you a long time and together we've got mighty good results. All right—we're going to keep on getting them, only in a steadily bigger way.

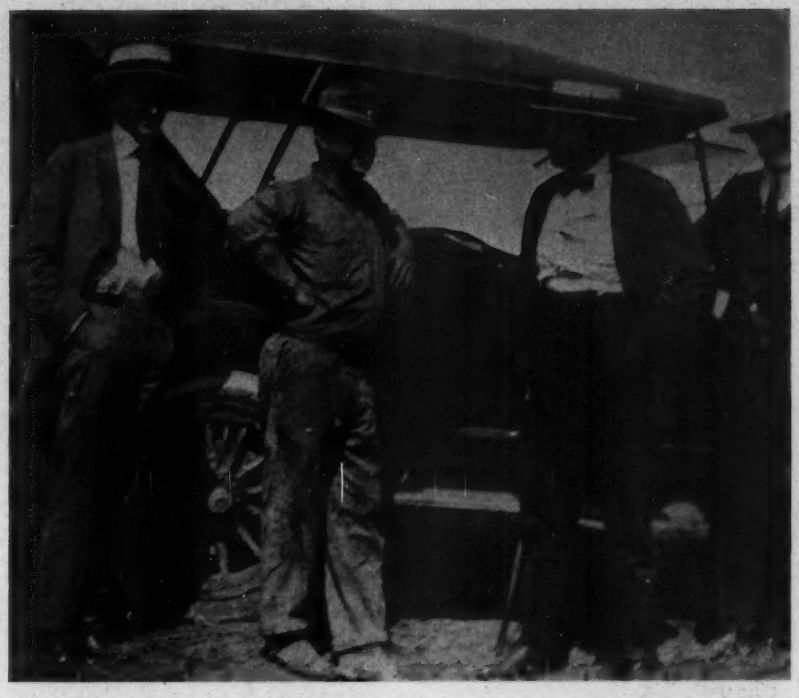
"To begin with, we're going to keep on an even keel; we're not going to over-expand, float a lot of stock and then have the bankers move in and take over our jobs. We **are** going to tighten up the nuts and bolts, pull in the loose ends and put our company on a sound business footing. Maybe this will take five years, maybe it'll take ten, but when it's finally accomplished we'll be ready to step out and show the world. We're going to solidify our holdings, we're going to sink some new wells and we're going to abandon others. We're going to build up our properties, fix up modern camps for you fellows and your families to live in, own a refinery that's the last word and build up a surplus out of operating profit. Then, when the time looks ripe, we're going to blossom out and give every big oil company in the state all the competition they want. That's the plan; it'll take patience, and hard plugging, but I think it's the road we want to travel. Now I've given you my ideas—Tom, Booky, and the rest of you boys—if you think I'm right I want you to say so and if you think I'm wrong I want it the same way, straight out with no punches pulled."

A number of the men who were present that day had come to the meeting with some misgivings. They knew Tom O'Donnell wouldn't let them down if he could help it, but they were well aware of the hazards that come with mergers, consolidations and expansions. Therefore, what O'Donnell told them was good news; their jobs were secure; their company appeared to be on an even sounder basis than it had been in the past and, if all went well with the company's plans, it stood an excellent chance of sidestepping the growing pains that many of the oil companies were just then suffering.

Confidence Inspired

The men who attended that Coalinga meeting went away with a feeling of confidence in their employer and immediately buckled down to the job at hand. New wells were drilled in proven territory, camp buildings were erected and additions were made to the topping plant at Fellows. For the period from September 27, 1912, to December 31, 1912, the directors reported net earnings before depreciation of $427,845.86 and paid a dividend of $217,191.99 on California Petroleum preferred and $184,384.44 on California Petroleum common. For the whole year, gross income of the corporation and its predecessor and subsidiary companies totaled $2,508,494 and total production amounted to 5,700,000 barrels of crude. At the close of the year 7 wells were shut in and 14 new wells were being drilled on proven acreage.

As the new company turned the corner into 1913, its first full year of operation, the future looked bright indeed. The demand for gasoline was increasing; prices were steadily advancing. Fuel oil was finding an ever-expanding market as more and more ships and railway locomotives were converted from coal to oil. In the sale of refined products, kerosene still maintained a slim lead over gasoline but the gap was rapidly closing. Automobiles had not yet moved out of the luxury class but they were no longer the laughable curiosity of a few years before. The whole concept of the oil industry was changing; petroleum was almost ready to step out into its new role that would quicken the pace of a hurrying world on wheels.



Tom O'Donnell was selected by President Woodrow Wilson as the $1-a-year Director of Production in the United States Fuel Administration during the World War. The photograph above shows O'Donnell on a tour of inspection of the fields in 1918.

Plant Expansion—Fullerton Lease

What O'Donnell had told his close associates in Coalinga was no idle chatter; the corporation under his direction was to proceed cautiously during its early years. At the close of California Petroleum's first full year of operation the records show that, although production for 1913 had dropped a quarter of a million barrels, economies of operation had been effected and gross earnings had been increased nearly $250,000. The 26 new wells that were drilled that year produced 600,000 barrels of crude, and during the twelve-month period not a dry hole had been sunk. Improvements were made in the topping plant at Fellows and during the year the plant handled nearly 2½ million barrels of crude and produced 341,687 barrels of tops. The refined product brought an average price of $1.33 a barrel, the residuum was sold at regular crude prices and the average price of the two combined brought an increased yield of 11½c a barrel net. Thus, with refining operations showing such satisfying results, plans were made for additional plant improvements and increased capacity. The company continued to pursue its policy of acquiring and developing new lands and, in December, 1913, three hundred acres of prospective oil property were leased near the Fullerton district.

Nineteen-fourteen got off to a good start when, on January 3, a new gusher roared in on a previously undeveloped tract of land under lease to Midland Oilfields, Ltd., subsidiary company. During its first 30 days the well produced more than 100,000 barrels of high gravity oil and after 60 days of continuous flow under tremendous gas pressure a 17-mile pipe line was built from the well to the plant at Fellows. Additional drilling on the tract immediately fol-

lowed and by the end of 1914 the company had registered a new production record with a total of 6,516,784 barrels of crude for the year.

Export Markets Hit

While the production department of California Petroleum was setting this record, the oil industry of the state was suffering from the disturbing effects of the World War. Export markets were suddenly shut off, and, to make matters worse, oil production in California skyrocketed to a new high with a total of 103,000,000 barrels for the year. Supply far exceeded demand and the 1914 average price of oil skidded to a new low of 46c per barrel. By the end of August, 1914, there were 54 million barrels of California oil in storage, just 6 million barrels more than the state's total production of 6 years before.

As prices declined and stocks in storage accumulated, the California Petroleum Corporation, in common with other companies in the industry, curtailed development work, shut in many wells and stored oil against the time when the world's navies would make heavy demands on the surplus oil in storage. By the end of 1914 the company had more than 2½ million barrels of crude in its tanks, and had so far curtailed operations that production for 1915 was only 4,440,139 barrels, down 2 million from the year before. Despite the discovery of oil on Midland Oilfields' lands these had been discouraging years and for 1915 gross income dropped below the 2 million mark for the first time since the company's beginning three years before.

Midway Development

The one bright spot of the year was the discovery of rich reserves on the property of a newly organized, wholly-owned subsidiary company. On February 15, 1915, the Petroleum Midway Company, Ltd., was incorporated in California for the purpose of developing 100 acres of oil land in the gusher area of the Midway district. Less than two months after the company began drilling, oil was discovered and another valuable holding was blocked in on Calpet's acreage maps as proven territory.

As the corporation turned the corner into its fifth year of operation the future looked considerably brighter. The anticipated withdrawals from storage had now begun; oil stocks in California were well below the April, 1915, peak of 59 million barrels. Prices had touched bottom at 40c a barrel and by the beginning of 1916 had bounced back to 62c. When Tom O'Donnell was elevated to the position of president of California Petroleum in May, 1916, he felt safe in sounding an optimistic note for the future, not alone for his own company but for the entire oil industry. Addressing his Board of Directors, O'Donnell told them of his future plans in a short talk that went something like this:

"It is hardly necessary for me to tell you men that we have been through an extremely difficult period. Every company in the oil business has been up against ruinously low prices, severe overproduction and unsettled business conditions. But fortunately all that seems to be past; prices are up and it looks like they'll keep on rising; oil in storage is rapidly declining; foreign markets that were closed to us during the first year of the war are opening up again and I imagine we'll sell more oil in Europe than we've ever sold before. Now — during the last couple of years we've acquired some light oil lands that we've let lie dormant and I have an idea that it's about time we did some development work on these properties and found out just how valuable they are. I'm not forgetting that we were forced to draw on surplus last year in order to meet our preferred stock dividends but I do feel that we still have sufficient surplus to do a little testing. And I also think it's about time to renew our policy of acquiring oil properties in prospective territories.. I don't mean that we should frantically plunge into development work immediately—our first job is to sell the heavy stocks we have in storage —but I think you will agree that we've had a mighty good development and production record and that by continually adding new acreage we've been able to keep production on something like an even basis. If you agree that this policy is sound I'd like your permission to go ahead and purchase such lands as Crumpton, Fuqua and I consider promising."

Confidence Confirmed

The directors had full confidence in their president and the men who served under him, and they readily agreed to his suggestions. At the end of his first year as president they were to have their confidence confirmed and they were to realize how closely he had followed the program he had outlined. During 1916 California Petroleum purchased a one-half interest in a lease on 10,000 acres of prospective land in the Los Alamos field of Santa Barbara county and quickly converted it into proven acreage when the discovery well come in with an initial flow of 300 barrels a day. Forty acres at Midway, 160 acres in the Belridge district and a quarter section in the Maricopa field completed the company's acquisitions for the year. For 1916, gross income again climbed above the 2 million mark and stockholders were gratified to see the addition of $318,227.64 to the surplus account in their year-end statements.

Nineteen-seventeen saw still continued adherence to the policies set forth by O'Donnell the year before. The California Petroleum Corporation that year leased 595 acres in the newly-discovered Montebello field and the company purchased a one-half interest in the Red Star Oil Company and a two-thirds interest in the San Gabriel Oil Company, both operating in the Montebello district. Owing to a shortage of materials and men as a result of America's entrance into the war,

production for the year declined but through careful operations and improved prices the company that year added $784,775.44 to surplus and increased its gross income by more than a million dollars.

O'Donnell Serves Nation

Early in 1918 O'Donnell resigned as president of his company when Woodrow Wilson requested him to serve as a dollar-a-year-man as director of oil production for the United States. He was succeeded to the presidency of California Petroleum by his old-time protege and friend, "Booky" Fuqua. Like his predecessor, Fuqua was a practical oil operator and production man and he continued to follow the policies laid down by his former chief. In 1919, after accepting the first presidency of the American Petroleum Institute, O'Donnell returned to the organization he had served for more than a decade, this time in the newly created posts of Chairman of the Board of Directors and Chairman of the Executive Committee.

Now, surplus oil stocks in California were dangerously low. The company began an intensive drilling campaign early in 1920. That year marked the beginning of a new era for the California Petroleum Corporation. At Coalinga, nearly eight years before, Tom O'Donnell had cautioned against over-expansion; he had said in no uncertain manner that when the time looked ripe his company must be ready to step into the big time. By the end of 1920 that time had come. There was a decided oil shortage; that year the price of California crude averaged $1.50 a barrel and the company earned a gross income in excess of 6 million dollars and added more than a million and a half dollars to the company's surplus account. Production was again on the upswing and the 1920 total was a shade under 4,000,000 barrels. During the years of 1919 and 1920 California Petroleum had quietly acquired new holdings in important prospective fields and now held leases on valuable acreage in practically every proven and promising field in California, including such new developments as Yorba Linda, Huntington Beach, Santa Fe Springs, Rosecrans, Kern River, San Fernando, Santa Maria, Fillmore and Buttonwillow.

The predictions that Tom O'Donnell had made for his company almost a decade before were nearing fulfillment. The company had conserved its assets and the men who directed its progress had shown rare patience. Now, after years of conservative progress as a producing organization, the California Petroleum Corporation was about to come to the front as an integrated company, ready to compete with the oil giants of the West. In Chapter IV we shall tell of the long strides the company took to complete that transformation, and we shall record the events leading up to the consolidation that made sturdy California Petroleum an integral part of even sturdier Texas Corporation.

Varying Results In Yolo Wildcats

The Standard Oil Co. had varying success with its two Yolo County wildcats, Cook No. 1 in section 32, 12n-1w and Hooper No. 1 section 32, 9n-1e.

Cook No. 1 was carried into the cretaceous to a total depth of 5009 ft. After several formation tests failed to result in more than slight showings of oil and gas this well was abandoned.

Hooper No. 1 was drilled to 5181 ft., plugged to a shallow depth, and redrilled to 3700 ft., where on a formation test the well flowed gas at the rate of 5,000,000 cu. ft. daily. When shut in, this test built up a pressure of 1450 lbs. Although a certain amount of salt water accompanied the flow, the possibilities of commercial gas production appear to be good.

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California Oil Industry Marshals Facts to Meet Attack on Depletion Allowance

To fight for the 27½% depletion allowance, which has been subject to Administrative attacks, the California Oil Industry's Joint Committee for Retention of Percentage Depletion allowance has been formed with W. H. Geis, president of the California Oil and Gas Association as chairman. Other members are: F. E. Foster, representing the California Oil and Gas Association; Rush M. Blodget, representing the Oil Producers Agency; L. M. Benedict, representing the Independent Petroleum Association of California.

As its first gun in the battle to retain the depletion allowance, the committee authorized widespread publicity of the report of the special committee on percentage depletion of the Mid-Continent Oil and Gas Association. This report is thought by the committee to be the best available summary of the arguments for the allowance, and follows herewith:

A Clear Statement

Recently, distinguished members of the executive branch of the government have contended that the percentage depletion provision of the present Revenue Act results in excessive allowances to the oil and gas industry. The members of this industry earnestly contend that percentage depletion produces no such results.

The position of the oil and gas industry is that percentage depletion represents no more than a fair and reasonable deduction for the return of the capital that is risked in an admittedly hazardous enterprise. When the peculiar circumstances of the situation are carefully considered, it is confidently felt that members of the Congress and the general public will agree that the 27½ per cent depletion provision contained in the income tax laws for the past twelve years should be retained unmodified. In support of this position, the following is submitted:

I. The True Purpose and Function of Depletion.

The true purpose of depletion, as well as depreciation, is to return over its useful life, the capital invested for the purpose of producing income. Since income taxes are computed on an annual basis, sound business dictates and proper accounting requires that the cost of all assets consumed in the production of income be deducted from gross revenue each year in the determination of profits. These deductions are known as depreciation and depletion. Depreciation relates to the decrease in value, through use, of replaceable assets. Depletion relates to the decrease in quantity and estimated value, resulting from the extraction and removal of natural resources, such as crude oil and minerals, which cannot be replaced. The oil producer can maintain his business only through repeated discoveries of new sources of supply, at unknown costs.

The net income from the discovery, production and sale of natural resources should be subject to income tax. The amount of net income can be determined only after deducting, from the total value of products discovered, produced and sold, all costs applicable thereto and the proportionate part of the capital invested in them. An allowance for the return of capital through depreciation and depletion is necessary in the determination of the true net income of natural resource industries. The return of capital through depreciation, which applies to known quantities and values, is determinable with a reasonable degree of accuracy, but such is not the case with depletion where the extent of quantities and value cannot be accurately determined. For this reason, income tax laws have provided practical methods of determining annual depletion deductions in order that the return of capital would not be taxed as income.

Thus, the true purpose of a depletion deduction is to provide a means whereby the taxpayer, engaged in the business of discovering and extracting natural resources, will receive a return of capital without the same being burdened by a tax intended to be levied only upon net income.

II. In Levying a Tax Upon Income, Congress Has Consistently Made Special Provisions for Unusual Circumstances.

Any uniform system of income taxation must be imposed in the light of a number of different conditions. Congress has always recognized the existence of circumstances which call for special legislative treatment. For example, in recognition of the fact that state laws, federal supervision, and other circumstances required special treatment in the case of railroads, Congress accorded to that class of taxpayers the privilege of filing consolidated income tax returns. In the case of insurance companies, Congress has found it necessary to provide special definitions of gross income and net income in order to avoid the inequities and difficulties which would arise from an attempt to compute the taxes of this important business under the general definitions of these terms as contained in the Revenue Act.

Other outstanding illustrations of special recognition by Congress are the special provisions for agriculture, the special exemptions from undistributed profits tax, the eighteen types of enterprises wholly exempt from the tax, the earned income credit, and conversely, the special treatment of personal holding companies. Every special treatment accorded a class or group of taxpayers is based upon a careful consideration by Congress of the problems of that class. Congress cannot lightly be assumed to have accorded special treatment to any partciular class or group of taxpayers without well-founded reason for such action. This is especially true in cases involving the percentage depletion deduction and the taxation of insurance companies, where the special treatment has been developed as a result of experience under prior revenue acts.

III. Legislative History of Depletion.

As early as 1918, Congress recognized that the oil industry should have currently returned to it, free of tax, the actual capital value of its properties. The actual capital value of property merely means the actual value of property in money. It was at that time and still is recognized that oil in place is the principal amount of capital involved in every oil property. In order to return this capital free of tax, Congress determined that the value of oil in place should be based either on cost, the fair market value as of March 1, 1913, or the fair market value within thirty days from the date oil was discovered. The latter method of ascertaining the amount of capital involved was difficult to administer, as well as expensive to the government and taxpayers. To correct this fault, Congress adopted in 1926 what has commonly been referred to as "percentage depletion." It should be re-

membered that this change was not a departure in theory from the views of the 1918 Congress. The 1926 Congress merely provided a simplified method of returning to taxpayers depletion in an amount materially less than that allowed by the 1918 Congress, but which it estimated would protect the rank and file of the industry, particularly the great number of small independent producers, from paying an income tax on capital. The 27½ per cent rate was arrived at after long and careful consideration. It was approved by the 1926 Congress and has been approved by each succeeding Congress.

From 1918 to 1937, a period of nineteen years, the members of Congress (as well as nationally known accountants and tax experts, outstanding business men, and oil producers themselves) have recognized that oil in place is capital, and that this capital should be returned to taxpayers by a depletion allowance which takes into consideration the special circumstances incident to the extraction of natural resources. The fact that this method of computing depletion has stood the test of time is, in itself, an endorsement of its soundness, and is evidence that this method is fair, just, and equitable, both to the taxpayer and to the government.

IV. Peculiar Circumstances in the Oil and Gas Industry.

The oil industry is peculiarly justified in its demand for continuance of percentage depletion because of the risks ever present in a majority, if not all of its operations. Like most other mineral deposits oil is concealed in the ground. There is, and can be, no certainty of its location until wells are drilled into formations containing it. Even when found, the amount of oil in any one pool or under any one lease or tract of land, cannot be measured. The amount in place and the amount which can be produced can only be estimated .

The glowing pictures of the few successful pioneer drillers lend color to the belief that it is an industry of millionaires only. No mention is ever made of the enormous expenditures for acquiring leases, drilling dry holes, finding small wells whose production will not return the cost of drilling, and other risks too numerous to mention. No other industry is attended by such an array of hazardous obstacles presented by nature, the expenditures incident to which are oftentimes never recovered.

All of these expenditures, including those investments in leases which are never drilled, are a part of the cost of the productive properties that are discovered and developed. The return of capital invested in these operations of the industry must be considered as proper charges against the income from the productive properties. This can only be accomplished by a reasonable deduction for depletion. The present provision for depletion deductions was designed in the light of these conditions, and more nearly meets the circumstances of the case than any other method yet attempted or proposed.

Crude oil and natural gas are irreplaceable natural resources, the location and presence of which cannot be determined without expenditures of large sums of money. A merchant can replace his stock of goods simply by making new purchases, and a manufacturer can buy more raw materials to process, in both of which instances costs can be determined with a reasonable degree of accuracy. However, an oil producer cannot replace the oil he pumps out of his wells. He must currently find new sources of supply, and must hazard a large amount of his capital in extremely uncertain exploratory operations in order to discover new production. It is this fact, if no other, which entitles the oil producer to percentage depletion in order that they may retain available capital to continue in business.

The only manner in which oil producers can locate new supplies of crude oil is through large expenditures in geological exploration and leasing and drilling operations, a large part of which will, in themselves, be a total loss and will not result in any income. Thus the discovery and the development of this natural resource involve costs which cannot be forecast, and which may be many times as much as the cost of the oil then being produced.

The 27½ percent depletion provision of the income tax law was enacted in recognition of these conditions peculiar to the oil and gas industry, in order to avoid taxing capital. When enacted, it was felt that this allowance would be sufficient to cover the cost of the discovery and development of an equal amount of oil in the ground. However, it is quite debatable as to whether or not this allowance, is now sufficient, for it is generally recognized that more money is expended annually in the search for and development of new oil supplies than is currently received from the sale of the crude oil produced.

Conclusion

The inevitable conclusion is that percentage depletion is necessary to the producers of oil and gas, that it permits uniformity and certainty in the determination of the depletion deduction necessary to avoid taxing the capital invested, that its elimination will weaken the position of an essential national industry, and would impose upon the industry an inequitable burden which would discriminate against it in comparison with other industries.

It is therefore submitted that the provisions of the present law are fair and equitable, that they permit of substantial savings in expense to both the government and the taxpayer, that they protect the small operator against discrimination and the taxation of his capital, that they return no more to the industry than its annual consumption of capital, and that they constitute the best procedure yet devised for recognition of the capital continuously invested in an industry necessary to the welfare of the Nation.

Gilbert Heads A. P. I. Program Committee

W. E. Gilbert

W. E. Gilbert, of Shell Oil Co., Los Angeles, has been appointed chairman of the 1938 Program Committee of the Central Committee on Drilling and Production Practice, a unit sponsored by the American Petroleum Institute's Division of Production. With Mr. Gilbert on the committee are: Secretary, Carl A. Young, American Petroleum Institute, Dallas, Texas; J. C. Gilbert, Barnsdall Oil Co., Los Angeles; M. L. Haider, The Carter Oil Co., Tulsa; E. F. Kindsvater, Phillips Petroleum Co., Bartlesville, Okla.; H. H. Power, University of Texas, Austin, Texas; C. E. Reistle, Jr., Humble Oil & Refining Co., Houston, Texas.

William H. Berg Fourth Standard President

In elevating William H. Berg to the presidency of the Standard Oil Co. of California, this organization of world-wide interests placed at its head a man whose talents are recognized internationally and who has been associated with Standard's California oil business since 1902. While the election of Mr. Berg to succeed the late Kenneth R. Kingsbury is strictly in accord with the Standard Oil Co.'s tradition of selecting its executives, the choice of Mr. Berg at a time when the company is importantly engaged in a policy of world production expansion is particularly happy. Since 1908 Mr. Berg has been closely associated with production management, and since 1921 with foreign oil production especially.

In 1902, Mr. Berg, a Tripoli, Iowa boy, was a stenographer in the offices of the California Standard organization, then a part of the old Standard Oil interests which did not become segregated until 1911. While the parent company was chiefly concerned with the refining and marketing of petroleum products, the California unit was early developing along production lines. In 1908 Mr. Berg was transferred to the production department.

In 1921 Mr. Berg was made general manager of foreign production. Now, as president of the huge corporation he can survey 35 years of active service with Standard Oil Co. of California out of his 55 years. His training will serve him well as his company further expands its world-wide activities with important explorations in Sumatra, Java, South America, and along the Iranian Gulf, when his company is faced with a knotty problem in Mexico where expropriation of a part of its 800,000 acres has recently become a governmental question in that country.

Mr. Berg has been a director on Standard's board for 13 years, and a vice-president, 10 years. He resides at his place, the Carolands, in Hillsborough, residential suburb of San Francisco. He is widely known throughout the oil industry of California and the nation. He is a director of the American Petroleum Institute.

See Special Session For Tideland Drilling Measure

Tideland drilling again comes into prominence with Governor Merriam's recent announcements that he may call a special session of the California Legislature. In fact, from the press reports, it can be concluded that tideland drilling will be practically the only subject under discussion at the special session, if, as, and when it is called.

As contrasted with the Olson and O'Donnell, bills, both of which are at present held up by referendum petitions and both of which attempted to deal only with the tideland situation at Huntington Beach, any further legislation on tideland matters will undoubtedly include the entire coastline of the state. Need for further legislation, indications are, was felt because of recent development of the Wilmington-Long Beach area, in which the state feels that it has a stake, and from which the state also feels that it should derive royalties.

State in Oil Business

An interesting attempt to put the state into the oil business was also foreshadowed by State Director of Finance Stockburger, who is quoted as having said that if a special session is called, it will be asked to consider legislation to permit the state to drill, or contract drilling, its own lands. It will also be asked to permit the state to reach agreements with cities and towns for surface rights to land where these rights are necessary to further the state's drilling plans.

This latter legislation indicated that the state must have some plan for directional drilling of tideland oil pools, the reasoning being that only under such conditions would it be necessary for the state to get surface rights in addition to drilling rights. In other words, the state must want to be in a position to erect a derrick on one piece of land—possibly city-owned—and complete its well or wells under an entirely different piece of land, or under the ocean.

In the meantime, the threat of Federal action to claim all mineral deposits lying under the ocean continues. In addition to the Nye resolution in Congress which instructs the Attorney-General to claim the deposits, both the Department of Justice and the Navy Department have declared that, in their opinion, offshore oil pools belong to the government.

Mud Sheath Sealing Of Oil Sand Reduced

If drilling mud solidifies on the walls of the hole where it penetrates oil-bearing strata, it is possible that many wells have been drilled through low-pressure oil-bearing formations which, after the well was completed, have become sealed as effectively as though they never had been tapped.

To overcome this difficulty engineers of the U. S. Bureau of Mines have devised a means of processing drilling mud with material insoluble in water but soluble in oil, with the thought that when an oil stratum is penetrated the hydrocarbons will attack the oil-soluble portions of the mud and pass through the mud plaster into the well. The most effective material that has been found is crude rubber cut into shreds about 1/16-inch in diameter and ½-inch in length. The effect is as though short pieces of string had been mixed with the mud plaster and pulled out after the plaster was in place against the oil-bearing formation, leaving holes through which the oil and gas can enter the well.

The hardening of the mud and proposed method of processing it are described in Report of Investigations No. 3354, entitled, Hardening of Mud Sheaths in Contact with Oil, and a Suggested Method for Minimizing Their Sealing Effect in Oil Wells, by C. P. Bowie, supervising engineer of the Bureau's petroleum field office at San Francisco. This report may be obtained without cost from the Bureau of Mines, Information Division, Washington, D. C.

Champlin Ethyl Export Vice-President

Ralph C. Champlin has been elected a vice-president of the Ethyl Export Corp., foreign subsidiary of the Ethyl Gasoline Corp. Since joining the Ethyl organization early in 1937, Mr. Champlin has been chairman of the Coordinating committee.

Tankers comprised more than 12 per cent of all water-borne tonnage passing through the Panama Canal in 1936.

Martinson Made Head State Safety Society

A. J. Martinson, recently appointed director of the California Petroleum Safety Board, has been elected president of the California Safety Society, an organization composed of various California industries.

Other officers of the society elected for the coming year are: J. Wesley Gebb, Industrial Accident Commission, first vice-president; J. D. Enefer, Southern California Edison Co., second vice-president; A. A. McGaha, Consolidated Steel Co., secretary and treasurer. The Society's executive committee members are: B. F. McDonald, B. F. McDonald Co., chairman; Charles Fortune, Columbia Steel Co.; A. Murray Evans, Illinois Pacific Coast Glass Co.

The society was formed in 1922 to promote safe practices in industry. Present membership totals 300.

A.P.I. Basin Chapter Hears Safety Talks

At the December meeting of the A.P.I. Basin Chapter, held at the Shell recreation hall in Long Beach on Dec. 14, those in attendance heard three speakers and were entertained by a talking picture, "Flying the Lindberg Trail," through the courtesy of Pan-American Airways.

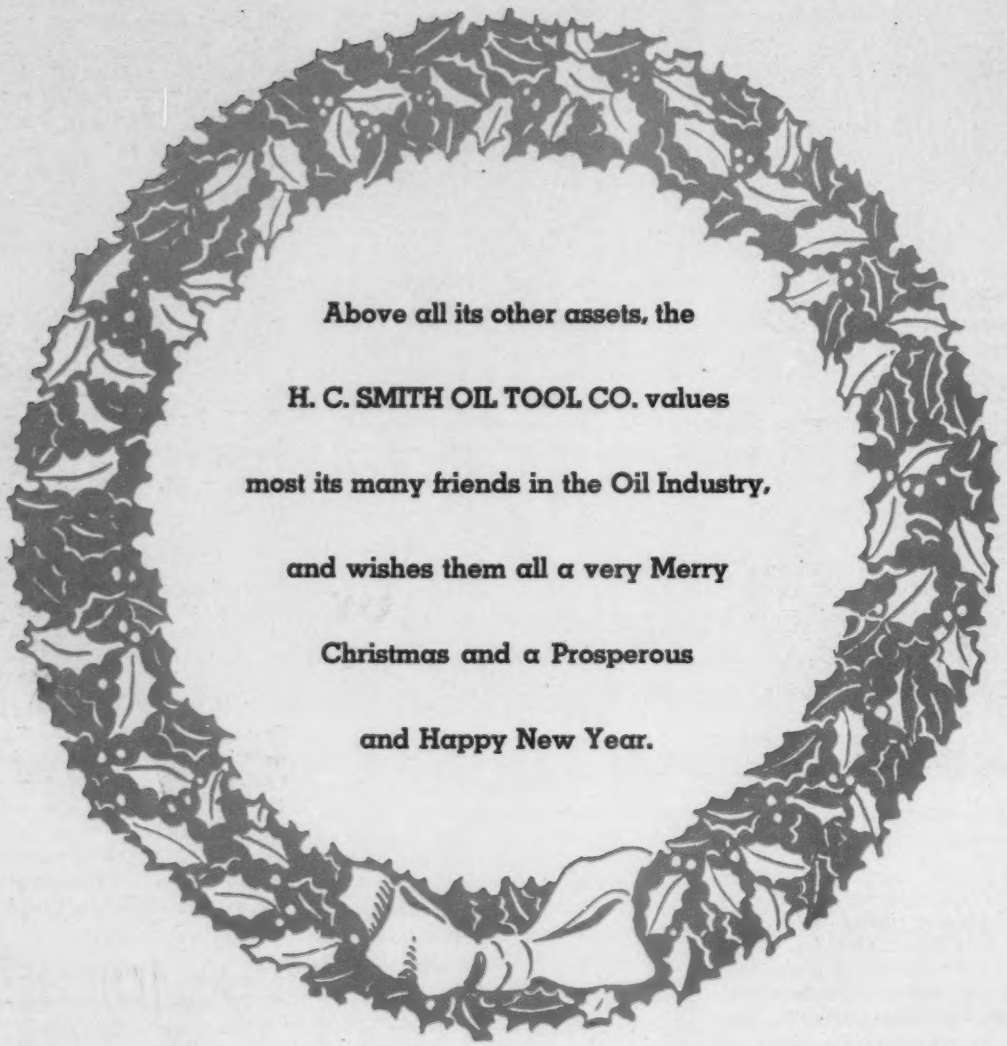
S. E. Nutt, of the Hartford Steam Boiler Inspection and Insurance Co., answered questions concerning oil field boilers; "Safety in the Oilfields," was discussed by Bob Self, of the Guaranty Limited Mutual Insurance Co.; "A Safety Program for the Oil Industry," was presented by A. J. Martinson, safety director of the California Petroleum Safety Board.

Attendance at the meeting approximated 200, with each paper followed by discussion.

McKean Vice President of American Meter Co.

Norton McKean was elected vice-president of American Meter Co. at a board meeting of the directors, held recently. Mr. McKean first became associated with American Meter Co. in 1919 as Superintendent of its Boston plant, after which he was made general superintendent of the corporation and manager of its Albany, N. Y., plant—D. McDonald & Co. Works. He will continue in those executive duties.

Season's Greetings



Above all its other assets, the

H. C. SMITH OIL TOOL CO. values

most its many friends in the Oil Industry,

and wishes them all a very Merry

Christmas and a Prosperous

and Happy New Year.

H C Smith Oil Tool Co.

Manufacturers of Rock Bits, Core Bits and Drag Bits

CORNER OF AVALON AND COMPTON BOULEVARDS

COMPTON, CALIFORNIA

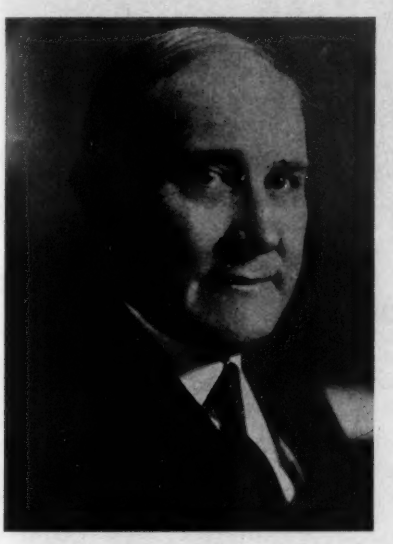
BAKERSFIELD VENTURA SANTA MARIA

Geis Elected President Of California O. & G. Assn.

L. P. St. Clair and R. E. Collom reelected vice-presidents. Continuing as treasurer, managing director, and assistant manager, respectively, are H. L. Westbridge, Col. F. E. Foster, and Dave S. Kilgour.

W. H. Geis

W. H. Geis, president of the Super Asphalt Products Co., was elected president of the California Oil and Gas Association at the December meeting of the Association board of directors. L. P. St. Clair, president of the Union Oil Co. of California, and R. E. Collom, vice-president of the Continental Oil Co., were re-elected vice-presidents. H. L. Westbrook, vice-president of the Belridge Oil Co., was re-elected treasurer for his 13th successive term. F. E. Foster continues as managing director and D. S. Kilgour continues as assistant manager.



L. P. St. Clair

F. E. Foster

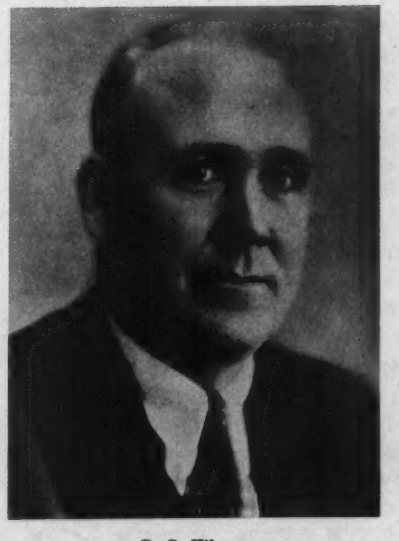
Directors

Directors elected for 1938 include: S. Belither, president, Shell Oil Co.; Cyrus Bell, president, Perkins Cementing, Inc.; R. A. Broomfield, executive vice-president, Barnsdall Oil Co.; Arthur G. Brown, district sales manager, Columbia Steel Co.; Mark C. Brown, vice-president, Hillman-Kelley, Inc.; E. B. Gilmore, president, Gilmore Oil Co.; Wm. F. Humphrey, president, Tide Water Associated Oil Co.; C. S. Jones, president, Richfield Oil Corp; Ralph B. Lloyd, president, Lloyd Corp.

Alexander B. Macbeth, president, Southern California Gas Co.; A. C. Mattei, president, Honolulu Oil Corp.; C. E. Olmsted, president, The Texas Co. (California); W. H. Reid, president, Hancock Oil Co. of California; William Reinhardt, vice-president, Union Pacific Railroad.

F. C. Ripley, manager, Chanslor-Canfield Midway Oil Co.; C. P. Watson, vice-president, Seaboard Oil Corp. of Delaware; A. L. Weil, president, General Petroleum Corp. of California.

R. E. Collom



D. S. Kilgour

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A NEW LINE OF

VERNON PUMPING UNITS

featuring

LOW FIRST COST

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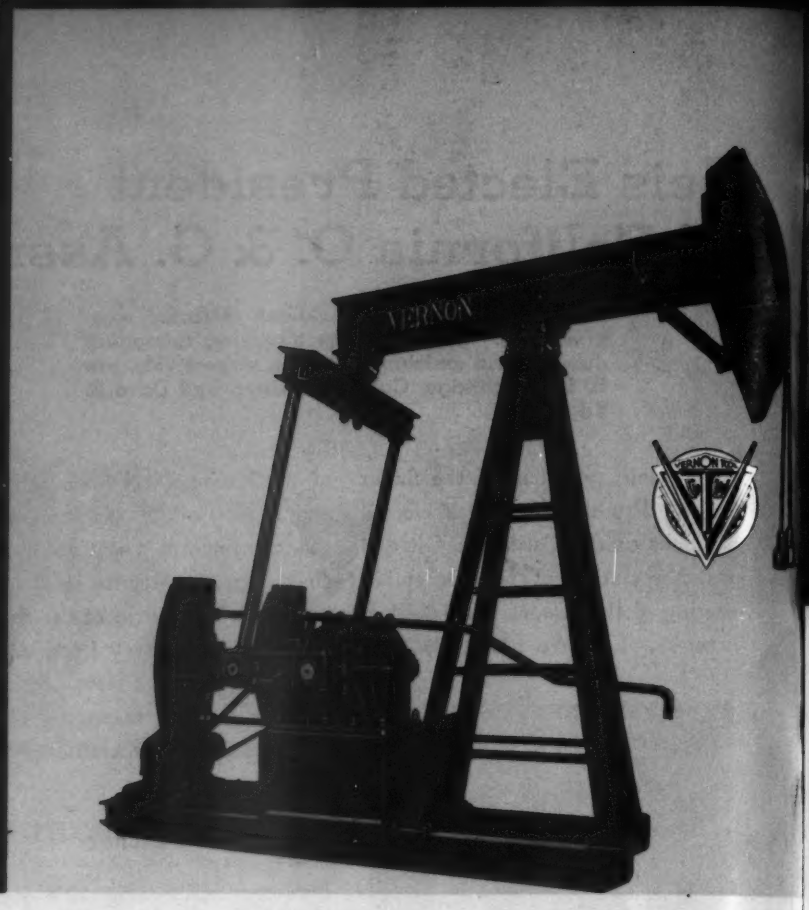
LOW MAINTENANCE COST

plus typical Vernon quality!



VERNON announces a new line of Floor Type Pumping Units with money-saving advantages which set a new standard in economical pumping.

LOW FIRST COST: VERNON Pumping Units *sell for less than ordinary types*—but at the same time provide such features as *exceptionally long stroke, sealed roller bearings* and *highest-quality reduction gears* usually found in only the most expensive units.

LOW OPERATING COST: VERNON Pumping Units are unusually well balanced and, with their wide range of stroke lengths and speeds, operate so smoothly that power, rod and tubing costs are materially reduced.

LOW MAINTENANCE COSTS: VERNON Pumping Units are made of highest-quality materials throughout, and are designed and built to give dependable, low-cost operation in most severe oil field service.

A SIZE FOR EVERY CONDITION

Twin-Crank VERNON Pumping Units are available in the following A.P.I. ratings: 10,000 lbs., 15,000 lbs., and 22,000 lbs. Single Crank Units are available in 7500 lb. and 10,000 lb. A.P.I. ratings.

FALK GEARS

All VERNON Pumping Units are equipped with the proper Falk herringbone type double-reduction gear. Falk is one of the world's foremost manufacturers of reduction gears which are noted for dependability and long life.

Representatives in California for Falk Double-Reduction Gears

LONG STROKE

VERNON Pumping Units are capable of exceptionally long stroke which means lower lifting costs t the operator. Maximum strokes fo the 10,000, 15,000, and 22,00 pound Twin-Crank Units respe tively are 54 inches, 64 inches, an 74 inches. Each Crank has fou holes spaced at 10-inch intervals

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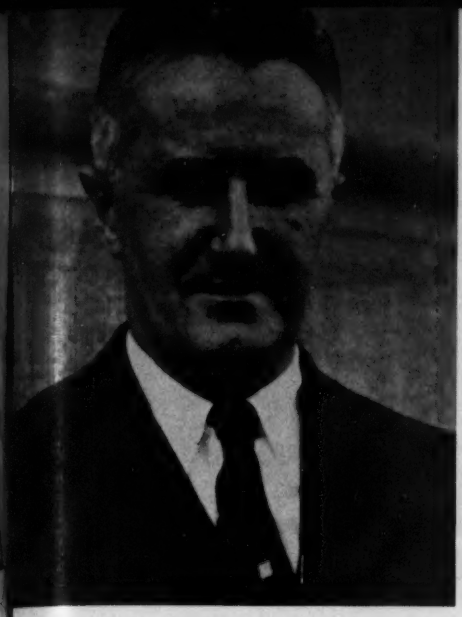

P. L. Armstrong

Paul L. Armstrong, who as chairman of the membership committee of the California Natural Gasoline Association, has been breaking records in that department, served with the 604th Engineers oversea during the World War after graduating from Interlaken School of Engineering at La Porte, Ind. Upon his return to the United States, Mr. Armstrong entered the services of the Commonwealth Edison Co. of Chicago, as testing engineer for the fuel department. For the past 12 years he has represented the Union Steam Pump Co. in California.

Pres. J. G. Burks, O. C. Field Gasoline Corp. **V-Pres. H. R. Linhoff, Richfield Oil Corp.** **Sec.-Treas. Wallace McIlhany, 510 W. 6th, L.A.**

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December, 1937

This section, a regular monthly feature of the California Oil World, is devoted to the activities of the California Natural Gasoline Association. The California Oil World is the exclusive official publication of the California Natural Gasoline Association, so designated by vote of the Association Executive Committee in a meeting on August 19th, 1937

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1936-37 Active Years For Natural Gasoline Industry

By W. W. ROBINSON
The Texas Co.
At C.N.G.A. December Meeting

New field developments, a sound economic condition, and increasing utilization of natural gasoline are basic factors which have stimulated plant construction and modernization in California's natural gasoline industry during 1936 and 1937, and justify an optimistic outlook for 1938.

Recovering from the 1933 low, natural gasoline production has steadily increased. In 1936, 603,000,000 gallons were produced, which was 11% greater than the 545,000,000 produced in 1935. Government figures for the first half of this year indicate that production for 1937 will probably be about 6% greater than that for 1936. If the present rate of production continues, the volume of natural gasoline manufactured this year will be close to 615,000,000 gallons, or the largest annual production since 1931.

In its struggle through the eight-year decline which started right after the flush production days of 1929, it is likely that few in the local industry realize that in 1935 and 1936 California contributed fully one-third of the natural gasoline produced in the United States. Texas came next with 28% and Oklahoma third with 23%. There is also every indication that California will occupy an equal position for 1937.

Market Widening

During the past eighteen months, the market for natural gasoline has shown a definite widening. By comparing monthly production figures to the volume of stocks on hand at the end of each month for 1935, 1936, and 1937 (to June), it will be noted that there was a large withdrawal from stocks in April last year. Since this withdrawal the average volume of stocks at the end of each month has been close to 2,200,000 gallons, yet natural gasoline production has increased. With stocks continuing to average close to the aforementioned level, the substantial production increase is evidently being absorbed through greater utilization.

Taken as an approximate average for the first 10 months of this year, 92 Pacific Coast natural gasoline plants handled an approximate monthly volume of 31,000,000,000 cubic feet of wet gas to produce approximately 51,000,000 gallons of natural gasoline. Based on federal statistics for October this year, the five leading fields in terms of natural gasoline produced are: first, Kettleman Hills, with 14,951,374 gallons; second, Long Beach, with 6,897,052 gallons; third, Santa Fe Springs, with 5,207,717 gallons; fourth, Ventura Avenue, with 4,499,981 gallons; and fifth, Huntington Beach, with 3,691,737 gallons.

Field Developments

From 1931 to the early part of 1936, Pacific Coast oil prospecting operations were slowed down by the general business recession, and the overall failure to discover pools of any size. However, as efforts continued, interest in the Los Angeles Basin was attracted to the eastward extension of the old Montebello field. Next, in June 1936, came the geophysical discovery of the Ten Section field by Shell. Following this, interest shifted to the rapid growth of the Wilmington and El Segundo fields. The first of this year Standard discovered the Greeley fields, and a little over a month ago The Texas Co. completed a well which established the North Belridge extension. Close on the heels of these San Joaquin Valley discoveries came Union Oil's 11,302-ft. well in the Rio Bravo sector, which proved one of the deepest sands in the United States. Following this came the Ohio Oil Co.'s discovery in the Strand area.

These Los Angeles Basin and San Joaquin Valley field developments have been characterized by an orderly expansion into which the natural gasoline manufacturer has come with his highly developed art. True, not all newly discovered areas have been entered by the gasoline industry, but those which have, together with the remodernizing done in older fields, reflects a surprising amount of progress when viewed in perspective.

Plant Construction

In the East Montebello field, The Texas Co. built its 25,000,000 cubic-foot-a-day Plant No. 14; and the Universal Consolidated Oil Co. its 6,000,000-cubic-foot semi-portable unit. With the proving of the El Segundo field, Richfield built a 2,000,000-cubic-foot plant which has since been enlarged to handle between 16,000,000 and 17,000,000 cubic feet. This plant extracts natural gasoline from a slightly sour gas and removes the sulphur compounds during the rectification of the finished product. The sulphur in the dry gas is removed by the iron oxide process. In this district the Ohio Oil Co. has recently erected an absorption unit brought over from the Venice field. Gas is being treated at well pressure at present, but the installation of compressors is under way. In the Richfield district, the West Coast Refining Co. has recently completed extensive changes to its plant which included a revision of the compressor plant and the installation of a new vapor compressor.

Higher Pressures

Of significance in the past year is the increasing trend toward the construction of, or changeover to, high pressure absorption equipment. Moving northward we find that The Texas Co. has erected a two-stage plant to handle gas from its Shiells Canyon development. Due to the development of a deeper zone at Rincon, and the Padre Canyon discovery, the Coline Gasoline Co. has recently remodeled its plants to include a 500-pound absorption tower, and a new compressor plant. In this same district the Western States Gasoline Corp. completely remodernized its 15,000-gallon-capacity plant. To El Capitan, Shell moved its Inglewood plant and modernized it to handle 3,000,000 cubic feet a day at 30 lbs. pressure.

Going into the San Joaquin Valley we find, almost at the foot of the Ridge Route, the Rancho Gasoline Corp.'s absorption plant with a capacity of 20,000,000 cubic feet at 450 pounds. And in the new Greeley field is the Standard Gasoline Co.'s new 450-pound unit with a capacity of 35,000,000 feet daily. No mention of San Joaquin Valley gasoline operations is complete without noting the Shell Oil Co.'s 450-pound, 20,000,000 cubic feet plant in the Ten Section field, with its 40-plate stabilizer.

In the North Belridge field we find the Belridge Oil & Gas Co.'s new Plant No. 4 with a capacity of 80,000,000 cubic feet daily at 450 pounds; and the same company's old Plant No. 3 rebuilt to handle between 50,000,000 and 80,000,000 cubic feet at the same pressure. Prominent in Kettleman Hills gasoline operations is the extensive construction of compressor plants by Kenda, Standard, Union, Superior, and others. This work alone is reported to have cost more than $1,000,000.

Viewing these developments in retrospect, one is impressed with the fact that so gradual and conservative have they been that it is with satisfaction that the realization comes that the Pacific Coast natural gasoline industry is on the up-grade and keeping pace with field developments.

Texas Co. Shiells Canyon Plant Is Laid Out On Three Elevation

By FRANK WEST
The Texas Co.
At C.N.G.A. December Meeting

During the month of March of this year, The Texas Company started construction of a new gasoline plant located at Shiells Canyon near Fillmore. The plant was completed and put into operation about the last of June.

Site Covers Four Acres

The site, containing approximately four acres, is situated a little more than a mile south of the Santa Clara River and is at an elevation of about 900 feet. Due to the irregular topography of this section and in order to avoid unnecessary excavation, the plant equipment was placed on three different elevations. The cooling towers are located on the highest level, the compressor plant on the intermediate level and the boiler plant, distillation unit and storage tanks are at the lowest elevation.

Three Points of Interest

Although the plant is modern in every respect there is nothing very unusual or unique in regard to layout or design and in general is quite a conventional gasoline plant. However, there are three points of possible interest in regard to its design, each of which will be briefly described.

The Wet and Dry Gas System

The flow of gas from the field, through the plant and to the fuel systems is shown by Figure 1. The greater part of the wet gas received at the plant is under vacuum pressure, although some high pressure gas is available. After being properly scrubbed and metered the vacuum gas enters the low stage compressors, through which it is boosted to a pressure of about 50 lbs. gauge and then cooled by atmospheric cooling sections. The condensate is removed in an intermediate accumulator and the gas passes on to the high stage compressors through which it is raised to a maximum pressure of 450 lbs. gauge and again cooled. At this point the compressor gas combines with the high pressure field gas and together flow through the high stage accumulator and into the absorber.

Reducing Gas Pressure

The dry gas leaving the absorber passes through an accumulator and to the gas distributing system where it is reduced to the necessary pressures for sales, field fuel, plant fuel and dry gas blow off.

Economic Considerations

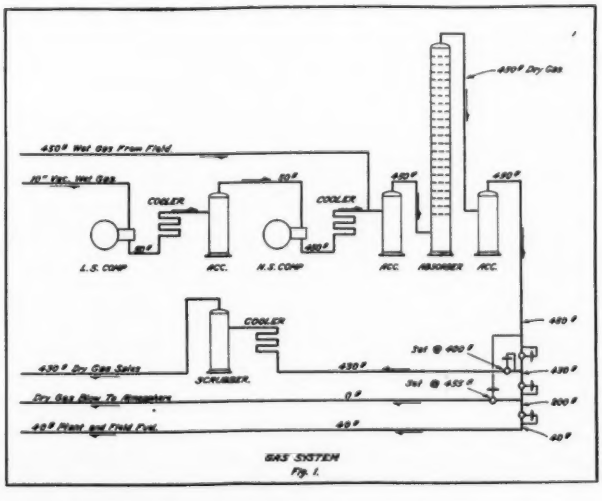
Although the high pressure wet gas from the field is only a small part of the gas treated by the plant it was considered economically correct to build only a high pressure absorption plant; even though at times all of the dry gas is reduced to comparatively low pressures.

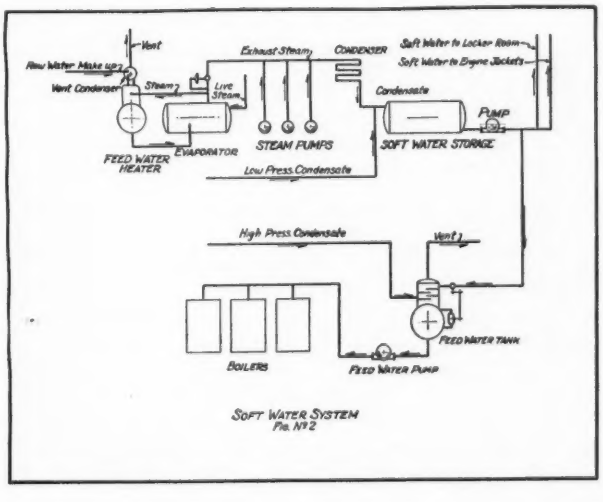
The Soft Water System

Figure 2 shows the complete soft water system of the plant. The principle of this system is that all steam generated by the boiler plant, and used for pumps, heating, or as process steam, is condensed and reused as boiler feed water. From this system a small quantity of the soft water is withdrawn and used as make up to the closed compressor jacket water system and also for use in the office and locker room. To compensate for this water used outside of the boiler system and for all loss through leakage and vents, an evaporator is operated to supply a make up of distilled water. The raw water before entering the evaporator is heated to boiling temperature and efficiently deaerated. The evaporator is heated by live steam and operates at a pressure of about 25 lb. gauge, under which conditions the scale obtained is very brittle and can be easily removed from the evaporator tubes. The amount of evaporator make up varies from 1% to 2% of the entire boiler plant load. The operation of this set-up is simple and proves the desirability of an evaporator system as a means of water purification particularly with water such as found at Shiells Canyon.

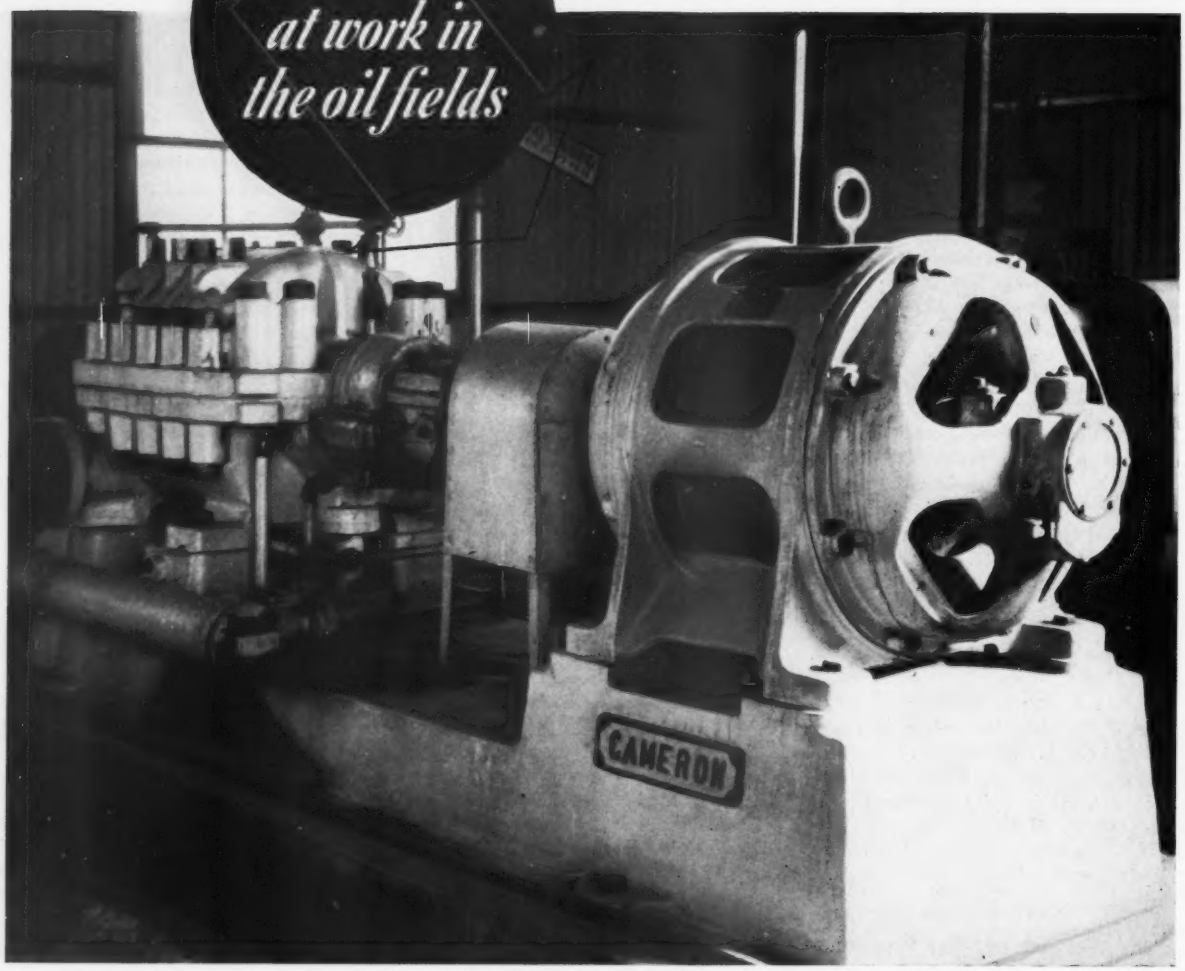
Distillation Unit

The principal of flow in the distillation unit is shown by Figure 3. The rich oil after leaving the main oil preheaters enters a flash tank, from which the vapors are liberated, and from the bottom of the flash tank the oil travels on to the top of the stripper. This vessel consists of 8 stripping trays and has a large oil reservoir at the bottom. Strip-





ELECTRICITY *at work in the oil fields*



A typical pipe line pumping unit at Signal Hill. Average cost per KWH, .0131c. Average cost per bbl. of oil, .00344c.

ELECTRIC DRIVE FOR PIPE LINE PUMPING

Whether on refinery lines or shipping pumps, electric drive is growing rapidly in popularity, especially in the Signal Hill and Long Beach fields. Electric drive is notable for its high efficiency and low operating cost, resulting in lowest cost per barrel of oil delivered. Why not discuss your pumping problems with an Edison engineer? His services are available without cost or obligation to any operator in Edison territory.

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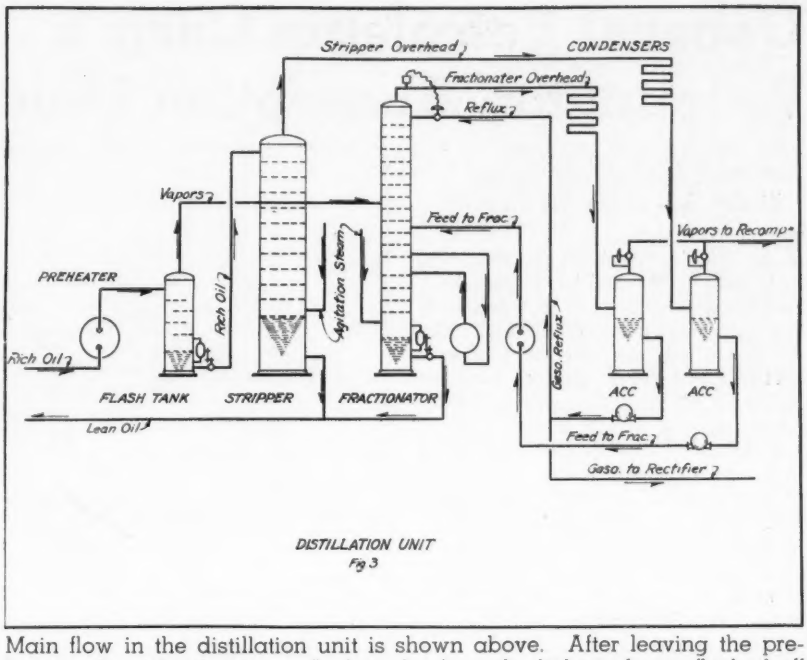
ping is accomplished by the use of exhaust steam. The lean oil leaving the stripper has completed its flow through the distillation unit and from there passes on back to the exchangers, coolers and absorber.

The stripper overhead is condensed, dehydrated and pumped through a preheater where it combines with the vapors from the flash tank as feed to the fractionator. The fractionator bottoms, after being thoroughly stripped with live steam, flow directly to the lean oil stream. The fractionator consists of 9 stripping trays and 10 fractionating trays. The overhead from the fractionator is condensed, dehydrated and pumped back, in the conventional manner, for reflux; the excess going as feed to the rectifier.

Increased Efficiency

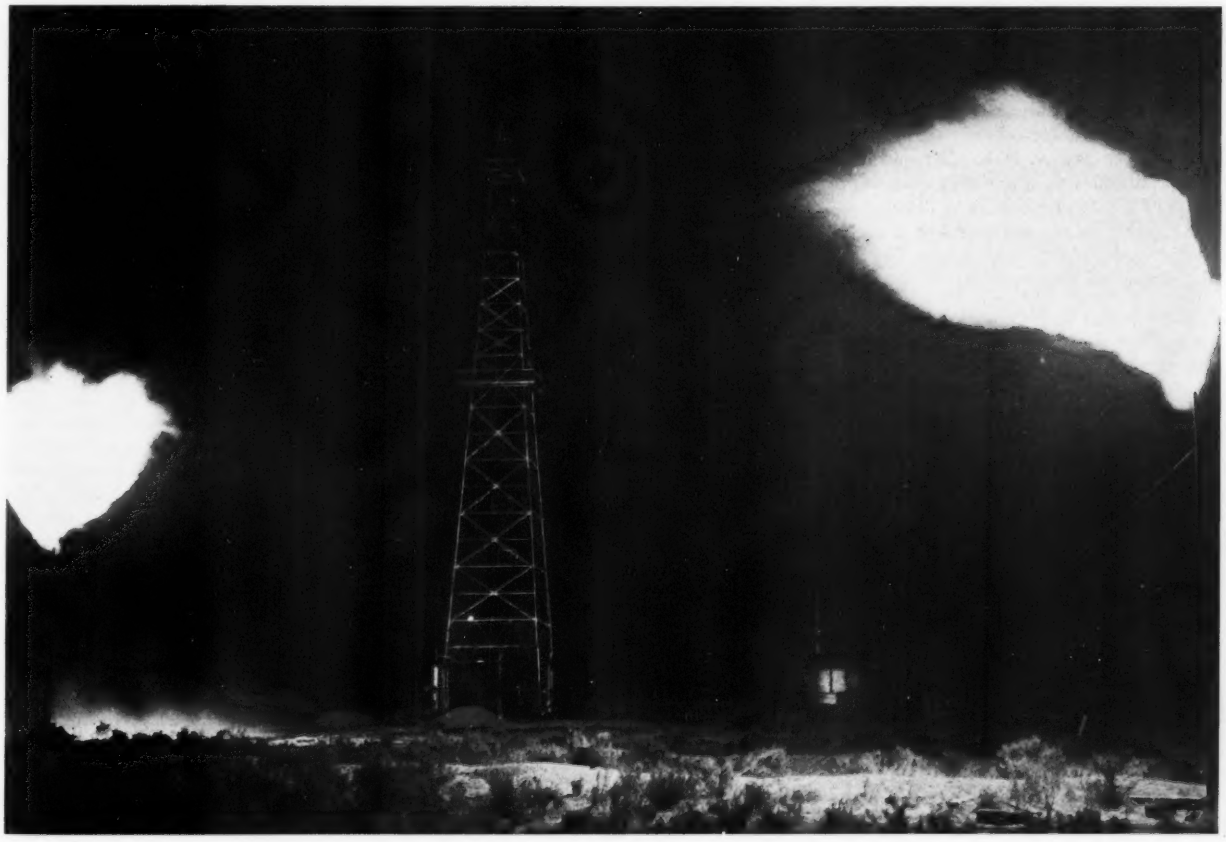
The separate oil stripper and gasoline fractionator, as described at this plant, has not only greatly increased the ease of operation, over the combination still and fractionator but has also proven economically more efficient.



DISTILLATION UNIT
Fig 3

Main flow in the distillation unit is shown above. After leaving the preheaters the rich oil enters a flash tank where the light ends are flashed off and the bottoms are taken to the top of the stripping tower where exhaust steam is used.

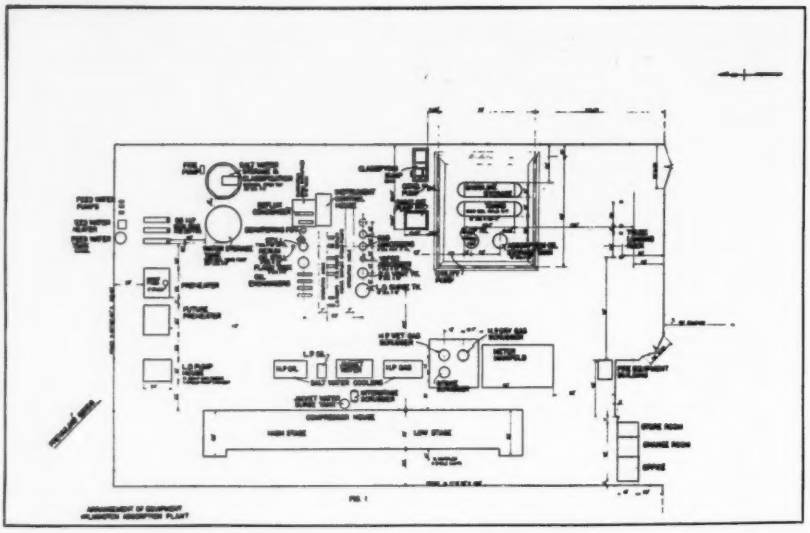
Dramatic nocturnal photographic study of Union Oil Co.'s Kernco No. 1-34 well, with which Union discovered the new Rio Bravo field, west of Bakersfield, California. This photograph was taken at night by the light produced from the torches, at right and left in foreground, where surplus gas from the well was being burned to eliminate fire hazard. The character of the flat, sage brush covered terrain of the well's lonely location is shown.



General Petroleum Corp.'s Wilmington Absorption Unit

By M. E. GARRISON
General Petroleum Corp.
At C.N.G.A. December Meeting

The Wilmington absorption plant was built early in 1937 and has already been enlarged several times to keep pace with the rapid development of the field. The distillation unit was so arranged that it could be enlarged in steps to handle a maximum of 560 gallons of lean oil per minute and to handle a maximum of 560 gallons of lean oil per minutes and to handle a maximum of 75,000 gallons of raw gasoline per day. Gas collection, processing, and distribution differ in many respects from other California practices. This paper will describe the plant and discuss some of the differences from the average practice.



Field Conditions

The discovery well, Terminal No. 1 of the General Petroleum Corp., came in on Dec. 6, 1936. This well is located just west of the north end of the Badger Avenue bridge at the end of Ford Avenue in Wilmington. This well produced 1389 bbls. of oil and 328 mcf of gas through an 1½" flow bean. The oil was 19.6 A.P.I. gravity and the gasoline content of the gas was 2.48 gallons of 20-lb. Reid vapor pressure gasoline per mcf. The casing pressure was 380 lbs. per square inch and the tubing pressure was 240 lbs. per square inch. The oil and gas produced was quite warm, approximately 126° F. at the tubing. The gasoline content of the oil was found to be considerably lower than other California crudes of like gravity.

After observing similar data from several wells and from experimentation with gas trap pressures, it was found that where the gas trap pressures were lowered to eight to 10 lbs. per square inch the receiving tank vapors were found to be so small in quantity that a gas collection system was not necessary or economical. Such trap pressures however, required elevating the trap at a location close to the well receiving tank for gravity flow of the oil.

This pressure permits choosing plant intake pressures of from 2 lbs. to 3 lbs. with a pressure drop of from 6 lbs. to 7 lbs. between the well and the plant. This reduces the size and cost of the gathering lines as compared to the usual plant intake pressure of mercury vacuum.

A preliminary estimate of the quantity of gas to be produced was based on an average daily production of 200 mcf of gas per well, a figure which has been substantiated fairly well.

Location of Plant

A four-acre site was selected near the Ford assembly plant. The location has several advantages, primarily that it is close to the center of the field and permits the economical use of ocean water for cooling purposes. Its chief disadvantage is the low bearing load which can be sustained by the soil. All of this land is artificial in the sense that it was formed in the process of dredging the channels and piling up the debris. To provide good foundation for equipment a large number of piles had to be driven.

The site was covered with approximately 18 inches of decomposed granite earth from the Palos Verdes Hills to provide some surface drainage and to diminish the mud troubles in wet weather.

Plant Layout

See Figure No. 1. This figure shows the general layout of the plant: Figure No. 2 shows the flow sheet of the distillation equipment.

The location of equipment was governed by Los Angeles City and County Ordinance requirements and by company safe practice. For example, gasoline storage tanks and gasoline loading racks must be at least 30 ft. from the property lines; boilers, compressor plants, etc., must be at least 20 ft. from such lines; the compressor station must be at least 125 ft. from any drilling rig and preferably at least 100 ft. from the distillation unit and the gasoline storage tank area. The boilers should preferably be on the windward side of the plant with respect to the prevailing winds, and at least 100 ft. from the distillation unit equipment, and on the opposite side of the plant from the gasoline storage tanks. The gasoline loading rack should be located at least 100 ft. from any of the plant operating areas. All of these considerations have been met.

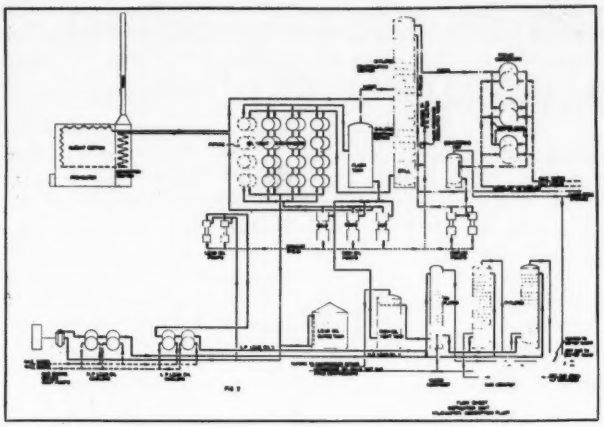
While the need of some of these clearances is subject to argument it is generally conceded that distance between hazards increases safety by some function of the distance.

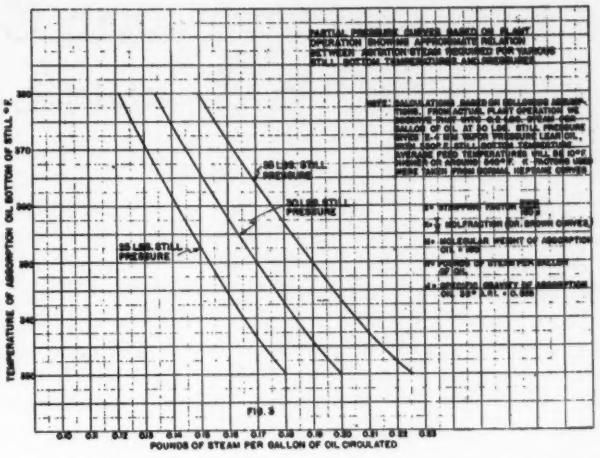
Foundations

A test piling was driven 50 ft. before it was adjudged satisfactory and this length was specified for all piles.

A loading of 20 tons per pile was used for all stationery equipment and a loading of 20 tons per pile was used at first and lated decreased to 15 tons per pile for all compressor foundations. The loading was decreased in order to diminish vibration.

Six vertical piles were driven under each horizontal gas engine driven compressor unit with large concrete bases capping the piles. The latest compressors installed were considerably larger than the horizontal units and are of the vertical type and have in addition to the 50-ft. vertical piles a row of 12" concrete-filled steel brace piling on each side on 35-ft. centers. The brace piles were driven at an angle of approximately 20 degrees




TEMPERATURE OF ABSORPTION OIL BOTTOM OF STILL °F.
POUNDS OF STEAM PER GALLON OF OIL CIRCULATED
35 LBS. STILL PRESSURE
30 LBS. STILL PRESSURE
25 LBS. STILL PRESSURE

from the vertical and slope outward from the center line of the unit.

While piling was not used under foundations, the soil bearing pressure was limited to 500 pounds per square foot including the weight of the concrete. This applied to pipe supports as well as to structures.

Absorption Pressure

Absorption at 150 pounds per square inch was selected over 35 to 40 pounds for several reasons; First, dry gas could be delivered to the gas company without further compression and at a premium over 35 pounds per square inch; Second, it permitted the use of considerable equipment available at the Santa Fe Springs absorption plant, particularly a large quantity of piping materials; Third, it increased the recovery of gasoline from wet gas; Fourth, due to reduced oil circulation rate it decreased the boiler capacity required; Fifth, it increased the flexibility for expanding the distillation unit and for distributing the dry gas. On the other hand, the 150-pound absorption method required considerably greater compressor station installation expense to keep up with the increases in the gas volumes. However, this equipment has the least deterioration and the greatest salvage value.

Two-stage compression was required between the 2-lb. intake and the 150-lb. discharge pressures. In order to reuse the piping from Santa Fe Springs most economically, all the low stage compressor units were placed at the one end and all of the high stage compressor units at the other end of the compressor plant. The auxiliary units were placed between the low and high stage compressor units. This necessitated some special controls for balancing the load when a high stage compressor unit is shut down.

Flow Sheet

See Figure No. 2. The flow sheet incorporates several features which are not new in themselves but which have not been grouped together in this manner before.

The use of a flash tank at the end of the exchanger on the rich oil stream is of interest. The rich oil is pumped from the rich oil vent through the heat exchangers and into the flash tank. The oil entering the flash tank is around 275-285° F. Approximately 80 to 85% of the absorbed gasoline in the rich oil flashes off at this point and enters the main still one plate above the feed plate. The partially stripped oil is again pumped from the flash tank through a direct fired heater and to the still.

A direct fired heater of our own design, patterned after refinery practice, was built for preheating the rich oil to 350-400 F. It consists of a convection section and a radiant section connected together in series. The heat load is distributed about 80% to the radiant section and 20% to the convection section. Skin temperatures on the tube walls will vary from 400 to 500° F. At a 200-gallon-per-minute rate through the heater the pressure drop is around 26 pounds per square inch.

The use of the flash tank reduces the heat load required in the heater and reduces the volume pumped through the heater thus saving in fuel, and in pumping costs.

The main still is seven feet in diameter and has 10 stripping plates and 10 fractionating plates. The fractionating section is rated to handle 75,000 gallons of gasoline production per day with a two to one reflux ratio. The stripping section will handle a maximum of 560 gallons of oil per minute.

Exhaust steam from duplex pumps is used for agitation steam in the still and for boiler feed water heat. The pumps used for this purpose are the reflux pumps, the low pressure lean oil pumps, and the rich oil pumps. A back pressure regulator is used in the exhaust steam line, discharging any excess steam to the feed water heater. By using the curves shown in Figure No. 3 as a basis, the temperature of the rich oil leaving the heater may be adjusted to prevent blowing any unnecessary steam to the air.

As the temperature of the rich oil from the heater rises, the amount of agitation steam diminishes. The amounts of agitation steam required for different still bottom temperatures are shown for three different still operating pressures. It may be noted that the agitation steam requirements are considerably less for the lower pressure. As the temperature of the oil in the still is raised the amount of reflux required increases to make a given specification gasoline.

Raw boiler feed water makeup is reduced by returning the condensate from the reflux dewatering tank to the feed water heater.

The results of these ideas is a flexible and an economical operating plant. For example when circulating lean oil at a 250-gallon-per-minute rate and maintaining a rich oil temperature of 355° F at the heater outlet with a plant output of 33,000 gallons of gasoline per day, the steam load is such that it can be handled by one 85 h.p. firebox boiler.

Rich oil from the 150-lb. absorbers is vented to 30 lbs. in the base of the vapor absorber and again to 5-8 lbs. in the rich oil vent tank. The vapors from the rich oil vent tank pass to the compressor suction and are the only vapors in the plant that are recompressed. Vapors from the gasoline dewatering pot and from the gasoline storage tanks go to the base of the vapor absorber. The low stage compressor discharge is also

connected to the base of the vapor absorber for emergency loading.

The vapor absorber is four feet in diameter and has 20 plates on 18″ spacing, and can handle approximately 2000 mcf of gas.

Liquid level control consists of pilot level controllers operating normally closed type motor valves. All motor valves are connected to one pilot air supply line so that all can be closed from a remote point in case of fire or other emergency. Electrically operated high level alarms are connected to a signal on the main control board and also operate a common plant horn.

The lean oil pumps for the high pressure absorbers are gas engine driven. A low pressure lean oil pumping circuit was also installed. This arrangement provides an economical method for handling the lean oil as the load upon the plant varies.

Air Conditioning

An auxiliary vacuum still is operated periodically for reconditioning the absorption oil. The bottoms from still are recirculated through a separate heating coil in the direct fired heater. A steam jet type ejector is used to hold 20″ of mercury vacuum in the equipment. The reconditioned oil is returned to storage. There is no evidence of oil break down in the main absorption oil system due to heating and the need for reconditioning is due only to oil contamination from the gas.

Oil conditioning methods, even in direct fired heaters, is not new. It was used in the San Joaquin valley oil fields as early as 1921, particularly where emulsification gave trouble with the use of the comparatively heavier gravity absorption oils.

Compressor Station

Several of the compressors moved from the Santa Fe Springs plant were two cycle units. These were rebuilt into overhead exhaust type. Exhaust pipes within the compressor building were insulated with a high temperature asbestos insulation protected by a thin sheet metal cover. This makes a cooler building than air jacketing. Above the building roof a concentric galvanized iron jacket was installed to the top of the muffler. This was open through the roof of the building and to the air above, serving as an air jacket and a chimney to carry off hot air from the compressor building. This jacket hides the muffler and can be painted, whereas the paint does not remain upon the mufflers for any great length of time. This adds to the plant appearance.

Sea Water Cooling System

Average wet bulb temperatures in this area are such that from 80 to 85° F is about the lowest practical temperature that could be expected from a cooling tower. Ocean water temperatures will average around 65° F. and never exceed 75° F. Electric current for pumping is comparatively cheap and purchased water costs are comparatively high. These facts led to the use of the ocean water for cooling.

A pumping plant was installed on a wharf in the Long Beach channel east of the Ford plant slip, with an 18″ steel pipe line to the absorption plant. A gravity return line of vitrefied tile was used. Two deep well pumps driven by 75 h.p. totally enclosed vertical shaft electric motors were installed for pumping salt water. With one pump operating on the line 2700 gallons of water per minute are pumped; with both pumps operating 5000 gallons of water per minute are pumped.

This necessitated the installation of a closed jacket water system with pure water for compressor engine jacket cooling.

Several precautions against sea water corrosion were taken. Air eliminators of the float type were installed to reduce the accumulation of air at the high points in the system. These air pockets are known to accelerate corrosion. Chlorine injection was provided to kill algae and organisms. Brass tubes, either Admiralty or Yorcalbra metal were used, but galvanic action was found to be undesirably rapid between these tubes and the cast iron cases or bodies. To protect the iron, the channels and covers were painted inside with two coats of a rubber insulating paint. Also, ¾″ zinc plugs five inches long were installed in the channels to absorb the electrolytic energy. These plugs disintegrate in approximately two months' time of operation. If this method does not satisfactorily take care of this problem the Kirkaldy method, or counter electrolytic method, will be tried.

Barnacles have thus far been found only in the first 200 ft. or so of the pipe lines from the salt water pumps. Separate lines were installed from each pump for the first 300 ft. from the pump, then connected into a common main. Fresh water is connected into each of these lines so that they may be filled with fresh water when not in operation. It has been found that fresh water kills the barnacles. Either line may be cleaned without interrupting the flow of water to the plant.

Double screens were installed around the salt water pumps. The outer of these screens may be raised for cleaning. Screens were also installed at the ends of the individual pipe line from each pump and at the entrance to each cooler. Considerable thought should be given to the design of these screens because of frequent cleaning without interruption to the flow of water and at short notice.

A 1000-bbl. skimming tank eight feet high and 30 ft. in diameter was placed in the salt water return system. The water entering this tank was carried through a weir box placed across the top of the tank from the edge to the center of the tank. The water discharges vertically from the weir box into the center of the tank. A vertical wood baffle extending from about 18″ from the bottom of the tank to within about six feet of the top of the tank and placed approximately eight inches in from the shell of the tank was installed around the inside of the tank. On the upper edge of this baffle a skimming trough was installed so that any oil separating out in the quiet space between the baffle and the wall of the tank could be skimmed off. The salt water is removed through two 12″ pipe connections located five feet up on the shell of the tank. These connect into a 24″ diameter vertical standpipe which in turn connects to a 24″ diameter vitrefied gravity drain line back to the harbor.

Storage Tanks

Two 1000-bbl. welded gasoline storage tanks suitable for a working pressure of 40 pounds per square inch were installed, each 12 ft. in diameter and 42′-6″ long, with hemispherical heads. Each tank has two outside ring girders which carry the load. The tanks are installed in a horizontal position. One ring girder is bolted rigidly to the foundation and the other rests upon rollers to permit movement with temperature changes.

Pipes Lines

Wherever possible all pipe lines have been installed above ground . Lines have been arranged above ground to run parallel with each group of equipment. The crossover lines between groups have been buried. Soil corrosion is unusually bad upon pipe lines buried in this area. Plant piping, is much easier maintained where it is installed above ground.

Rancho Gasoline Installation Completely Automatic Unit

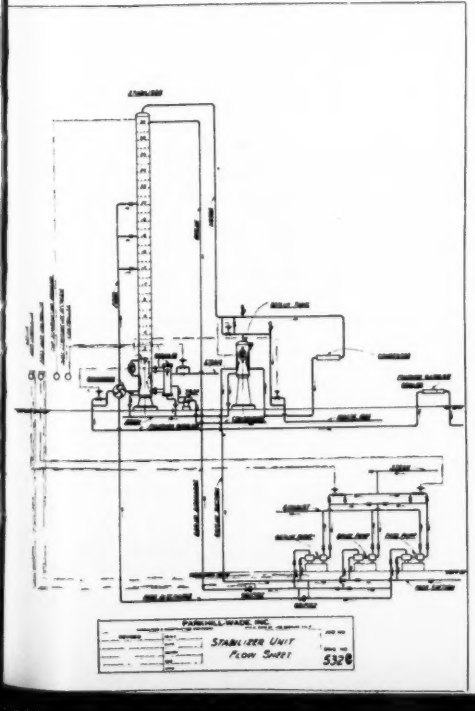
By FRANK W. WILCOX
Parkhill-Wade, Inc.
At C.N.G.A. December Meeting

The Rancho Gasoline Plant which was designed and erected during the past summer for the Rancho Gasoline Corporation by Parkhill-Wade is located on the Reserve Lease in Kern County, and is approximately two miles east of Highway "99" and about five miles north of Grapevine.

This plant is designed to handle a maximum of 20,000,000 cubic feet of natural gas per day at 450 pounds working pressure, with a lean oil circulation rate of 125 gallons per minute. The distillation and stabilization capacity of the plant is 15,000 gallons per day of 26-pound Reid finished gasoline.

Automatic in Operation

When Mr. Parkhill gave the highlights of the Belridge Plant No. 4 earlier in the evening, he greatly simplified my task because the Rancho Plant, like Belridge, is typical of our high-pressure design. Both employ the same cycle, the major point of difference being capacity. Like Belridge, Rancho has received much favorable comment on its compact layout, its neat, orderly appearance, and the quality of its workmanship. As will be noted from a bird's-eye view, Figure 1, all lines are in trench or above ground, greatly simplifying problems of maintenance and repair as well as eliminating corrosion factors.



The plant is automatic in operation, the liquid level controls on the vessels handling the oil circuit after manual setting of the lean oil. To augment the automatic feature of the plant, as well as to make it as fool-proof as possible, alarms with audible signals are installed. These include high levels on the high and low pressure vent tanks and on the intake scrubber; low pressure on the lean oil discharge, the plant pilot supply system and the cooling water discharge, with both high and low alarm on the boilers.

Combination Unit

The absorption tower is a combination of three separate pieces of equipment in one shell, designed for 500-pound working pressure. The base section of the tower contains an inlet Mist-D-Fier scrubber, the central portion a sixteen plate bubble cap absorber, and the top, the outlet gas scrubber. This combination has several distinct advantages, the entire gas cycle being confined to a single shell. This makes possible a substantial saving in piping cost as well as material conservation of yard space.

As is the case at Belridge, Rancho employs a two-stage venting system. Pressure is reduced in the first stage to approximately 200 pounds, thereby relieving the fat oil of approximately 50% of its fixed gases which are vented to plant fuel. A second stage operating at 30 pounds discards a substantial amount of usable gasoline which is processed through the reabsorber, the vent vapors from which are carried to plant fuel.

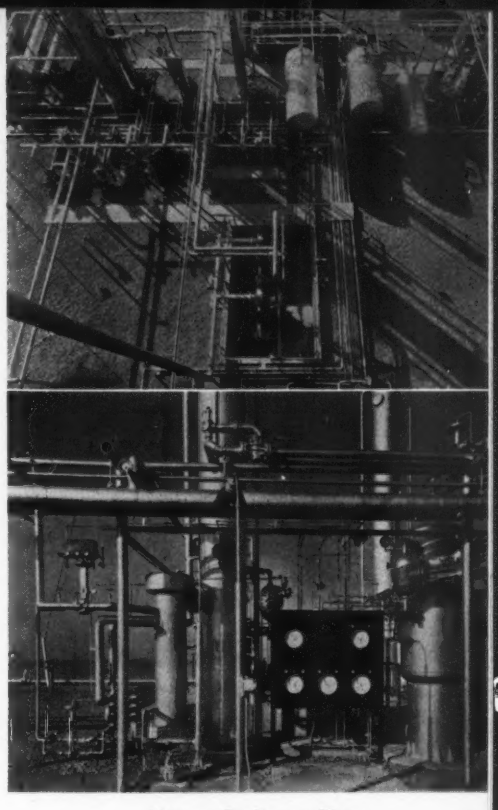
The still, condenser, gasoline de-watering tank and reabsorber are similar in design to those at Belridge, hence will require no additional comment here.

Recorder Controllers

The base temperature, top temperature and pressure are controlled and recorded. The instruments are all mounted on a single outdoor panelboard which is located immediately adjacent to the stabilizer unit for the convenience of the plant operator, as shown in Figure 3.

Boilers and storage are somewhat conventional in make and for that reason not commented on in detail.

The stabilizer unit is designed for a working pressure of 275 pounds per square inch. The column contains thirty



Upper—Bird's-eye View.
Lower—Control Panel.

bubble cap plates on 18-in. spacing. The reboiler is an external vertical tubular type which gives excellent heat transfer rates.

Patented Control

The stabilizer control is a patented Parkhill-Wade cycle. This circuit is so arranged that only the amount of reflux required by the column is condensed, the excess being discarded to the stack as a warm vapor directly from the top plate of the column. The condenser by-pass valve is controlled by the liquid level in the reflux tank. Should the condenser tend to over-make reflux, the condenser by-pass valve opens, reducing the pressure difference applied across the condenser so that the condensate backs up into the condenser, flooding more surface and thereby retarding the rate of condensation. The additional opening of the by-pass valve allows more vapor to pass directly from the top plate of the column through the back pressure regulator to the stack. Conversely, should the condenser tend to under make reflux, the condenser by-pass valve partially closes, increasing the pressure difference between the stabilizer top and the reflux accumulator, thereby uncovering more condenser surface. This condenser control using open cooling sections automatically compensates for atmospheric temperature variations. The circuit in detail is shown in Figure 2.

The stabilizer feed and reflux rates are controlled to maintain a constant ratio.

Many Unique Features Shown In North Belridge Plant No. 4

By C. L. PARKHILL
Parkhill-Wade, Inc.
At C.N.G.A. December Meeting

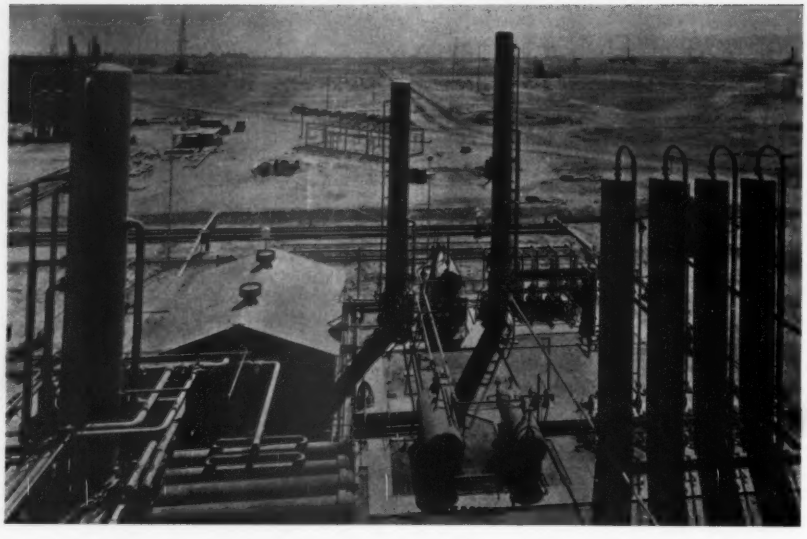
In my opinion, the thing of greatest value in the presentation of a paper of this kind is not the reading, or delivery of the paper itself, rather, a paper of this nature is valuable to all of us—the speaker, included—only in direct proportion to the amount of discussion its reading encourages.

It all too frequently occurs that the author has treated too lightly some phase of the subject under discussion that the members of the audience consider important. The fact that the author did not elaborate the point is not due to unwillingness, but rather to his psychological state at the time. The thing discussed is thoroughly familiar to him. Its problems and obstacles have been met and overcome—taken in stride, so to speak, and, as a result of this familiarity it is only natural that he may have a tendency to treat too lightly some point that may constitute a genuine problem of the moment to someone else.

I preface this paper with these remarks for two very concrete reasons. The first is my desire to make this paper prove valuable to you. The second is due to the fact that the cycle employed at Belridge Plant No. 4 is familiar to all of us and therefore presents much material that would be repetitive. However, the plant does incorporate several features of note, and I am therefore going to confine my remarks to these features rather than to an elaborate discussion of the cycle itself. I trust the material presented will encourage a lively discussion.

Belridge Plant No. 4 was built as a turnkey job and the completed plant turned over on April 1, 1937. The plant is designed for a capacity of 80 million cubic feet of natural gas per 24 hours at 450 pound gauge. The still is designed for a capacity of 75,000 gallons per day and the stabilizer will make a product having a Reid vapor pressure of from 20 to 27 lbs.

As to the general features of the plant, engineers who have visited it since the completion have paid us gracious compliments by stating that it represents the latest and most modern absorption plant yet seen in California, and we have been particularly pleased by their comments regarding the quality of workmanship and the neat, orderly battleship-like appearance of the plant as a whole.



Placement of vessels and equipment in this view shows compactness without crowding.

Compactness Sought

One of the major goals sought in the design of the plant was compactness. This feature is best illustrated by Figure 1, a bird's-eye view taken from the top of the cooling tower, showing the placement of the various vessels and equipment condensed into a comparatively small yard area with the layout so arranged as to eliminate crowding. The value of compactness lies in the fact that all of the plant units are easily accessible and the work of the operators is greatly simplified.

In line with modern practice, control of the plant is almost entirely automatic. The lean oil circulation rate is manually set and the rest of the oil circuit controlled by pilot operated liquid level controls. The controls for the stabilizer are grouped on a single instrument panel which is located almost in the center of the plant yard. The instrument panel contains feed and reflux rate recorder controllers, a base temperature recorder controller, a column pressure recorder controller, a top plate temperature recorder and a finished gasoline vapor pressure recorder.

The towers are all of welded construction conforming to the A.P.I. - A.S.M.E. Code for Unfired Pressure Vessels. Each of the towers rests on splayed concrete foundations having ample spread to make them stable under earthquake conditions, resulting in a yard free from guy wires.

In order to combat the corrosive action of soil on plant piping, as well as to improve maintenance conditions, all piping is either run overhead, above ground supported on saddles, or below the surface in concrete trenches. Refineries have employed this design to a degree for the simplication of tracing lines and repairing leaks, but its use at Belridge is the most complete application of the method to an absorption plant in this territory.

Cooling Tower

The cooling tower arrangement constitutes an interesting feature, a development by my associate, Henry N. Wade. The tower is divided and partitioned into two sections or "ends", each having its own water circuit. In the "hot" end of the tower, where the heat load dissipated is at high temperature gradient, the tower atmosphere assumes a high wet bulb temperature due to the evaporation of cooling water. In the "cold" end, where the gradient is smaller, the heat is dissipated more through sensible heat rise than through evaporation of the cooling water. Under this

arrangement, the wet bulb temperature of the "cold" end is not as high as that of the "hot" end, allowing a closer approach to the atmospheric wet bulb than would be the case if the total amount of heat were dissipated in a non-partitioned tower.

The water pumps serving the "hot" and "cold" ends are installed in a pump house separate from the building housing the lean and fat oil pumps. The installation consists of an operating and a stand-by unit each composed of a 67 horse-power turbine directly connected to an 8" water pump feeding the "cold" end at the rate of 2500 gallons per minute and a 6" water pump with a capacity of 1100 gallons per minute, feeding the "hot" end of the tower.

Wet gas from the field is cooled through an inlet Mist-D-Fier scrubber to remove entrained crude oil, water mist and condensate. From the scrubber, the gas denuded of all entrained liquids is proportioned by differential indicators to a bank of four absorption towers, each designed for a working pressure of 500 lbs. per square inch. Each absorber contains 16 bubble cap plates and an outlet Mis-D-Fier scrubber built integrally with the top of the tower to remove all traces of absorber oil entrained during absorption. This method of handling the outlet scrubbers is an economy feature that results not only in saving valves and piping, but in conservation of plant yard space otherwise used by additional vessels.

Venting System

A two-stage venting system is employed to relieve the fat oil stream from excess fixed gases. In the initial stage, the fat oil coming from the absorbers is taken into a high-pressure vent tank and held at approximately 200 lbs. This reduced pressure releases approximately 50% of the fixed gases in the fat oil and the vapors so released are vented to plant fuel.

In the second stage, the pressure is further reduced to approximately 40 lbs. in the low pressure vent tank. The vapors from this tank are taken to the fractionating reabsorber where the desirable gasoline fractions are extracted. The reabsorber contains 16 bubble cap absorbing plates and eight bubble cap fractionating plates and is equipped with an external vertical type reboiler.

Fat oil from the reabsorber is pumped to join the main fat oil stream before entering shell and tube exchangers and the preheaters. The still is designed with 10 stripping and eight fractionating plates, one de-watering plate and dehydrator leg, a feed flash plate and a reheater take-off plate with external reheater. The shell has sufficient capacity in the base to eliminate the need for a separate surge tank.

Plant pumping installations are shown here. The oil sets are turbine drive, the main lean oil pumps having a capacity of 375 gallons per minute, and the reabsorber lean oil pump, 65 gallons per minute. Main fat oil circulation rate is 440 gallons a minute, with fat reabsorber oil rate, 80 gallons per minute.

The overhead vapors from the still are carried to the gasoline condenser and the condensate delivered to a horizontal gasoline de-watering tank mounted at sufficient height to provide suction for the stabilizer feed and still reflux pumps. The stabilizer carries 30 plates and is designed for a working pressure of 225 lbs. Its flow is described in detail in Mr. Wilcox's paper.

The oil sets are turbine drive, the main lean oil pumps having capacity of 375 gallons per minute and the reabsorber lean oil pump 65 gallons per minute. The main fast oil circulation rate is 440 gallons per minute and the reabsorber fat oil rate 80 gallons per minute. Details of these pumping units are illustrated in Figure 2.

Dry gas after leaving the absorption plants is dehydrated through a calcium chloride brine unit similar to that designed and patented by Henry N. Wade. Water vapor is removed by passing the gas through bubble towers where it is intimately contacted with a concentrated calcium chloride brine which absorbs the water vapor. Brine concentration is maintained by boiling off the absorbed water.

Modernization designed to bring the operation of Plant No. 3, built in 1930, up to that of Plant No. 4 as described, was completed recently. This work included complete replacement of many of the units including a new cooling tower and open sections, new still, reabsorber, a high-pressure absorber, preheaters, inlet scrubber, the rebuilding of the outlet scrubber, and a complete revamping of the stabilizing unit.

Plant No. 4 is separated from Plant No. 3, by approximately 500 ft., giving the operating advantages of a single unit with the safety features of separation. The boiler plant is approximately 350 ft. from either of the absorption units and the storage is separated from both by about 300 yards.

The lighting in both plants is notable in that they are practically 100% flooded, with individual lighting at control points. As a result Belridge is a landmark for the San Francisco-Los Angeles airline.

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UNITED STATES STEEL

Richfield Santa Fe B-1, El Segundo, Blows Out

Blowing from the shallow zone Richfield Oil Co. Santa Fe B-1 provided the latest sensational gasser and the third for the year in the El Segundo field. While pulling the drill pipe from the 7539-ft. well the fluid was suddenly blown from the hole and wet, sandy mud thrown high over the derrick. Sixty stands remaining were dropped to bottom. 11¾-in. casing at 1147 ft. is the only pipe in the hole.

Being the third well in eight months to blow out, it is expected this one will behave the same as its predecessors—blow a few days and die a natural death. The gas zone consists of lenticular sands found between 1000 and 2000 ft. from the surface and though pressures are relatively high no great volume exists, past experience showing that wells brought in from this horizon are not capable of sustained production.

Shallow gas blowouts are by no means a novelty in this general area. A glance through the records discloses many similar occurrences, the latest being the Geo. F. Getty well which became a flaming geyser in September, and the Ohio Oil Co. Gough 3 which blew in while pulling drill pipe on April 14 of this year. Hole had been made to 7094 ft. and although the drilling mud appeared gas-cut at times, no alarm was felt; but with 35 stands remaining to be pulled the high pressure gas overcame the lowered mud column.

Old-timers recall the gas excitement of 1921-25 caused by the blowing out of Kitselman-Bohn No. 1, a mile to the east of the present El Segundo field, from a depth of 1360 ft. The Standard Oil Co. became interested and drilled two tests for gas, Bohn No. 1 in the sw¼ of sec. 8, 3-14, which blew out from 1112 ft., and Landowners No. 1, which tried without success to produce gas from 1035 ft. In 1924, Mcadden-Bering in the same section made two attempts at production, the first well blowing in out of control and junking itself in twenty hours and the second producing nothing at all.

L. B. Extension 3rd Union Well

Oil Operators No. 3 in the Long Beach northwest extension has been completed by the Union Oil Co. pumping 862 bbls. of 24 gravity clean oil. 8⅝-in. casing was landed and cemented at 3986 ft. and a 6⅝-in. perforated liner was landed on bottom at 4105 ft. This brings the Union's total for three wells to 1400 bbls.

Hilldon Oil Co. has spudded Amebco No. 3 east of the Pacific Electric tracks and has perforated the casing in Flood Control No. 1 from 4280 ft. to 4300 ft. from which interval the well is now pumping 240 bbls. a day (estimated) cutting 40%.

John Abrams & Associates Willis No. 1 cored the top of the oil sand at 4220 ft. and is standing cemented with 8⅝-in. casing at 4224 ft. Total depth is 4247 ft.

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Wilson Power Driven Drilling Rig
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Long Beach, California

LAUGH THIS OFF

One of the most distressing things about this here festive season is that when Santa Claus brings us a nice new fifteen dollar shirt, we have to cover up all of it except two bits worth with a coat and vest, asserts **Johnny Landers.**

And **Joe Scanlon** writes to tell us of an oil worker up in the Ventura district who is leading a fast and furious life. He's fast, and his wife is furious.

This one we overheard at the High Jinks the other night: Says the first wildcat, "Gee, I feel awful. I've had the worst attack of 'yoors' ever since I ate breakfast this morning." Says the second wildcat, "What's yoors", and you could have knocked him over with an aluminum liner when the first one replied, "Oh, I'll have a Scotch and soda."

Which recalls the awful predicament of the inebriate who sprawled on the sidewalk, and muttered as he gave another spasmodic wriggle, "I'll climb over this darned wall if it takes me all night."

"Do you sell gas?" the motorist asked **Bob Peyton,** and Bob replied sarcastically, "No, we just stick up these pumps and signs to lure people in for air and information."

And after seeing Sonja Heinie in another of her movie pictures, **Cy Rubel** and **Wendell Jones** dug their skates out of the trunk in the attic, hied down to the rink, and in a few minutes were gliding swiftly across the ice—but not on their skates.

Now somes **Ray Pierson** asking if we would support a petition to move Christmas Day back towards the middle of the month,, so that we could enjoy the presents a little longer before we get the bills.

Gene Hill received among his Christmas presents a pull-over sweater, and he is still wondering who it is that wants to pull the wool over his eyes.

Also, if we are to believe **Jim Craig,** a street sweeper down on Sixth Street takes two hours off every day to brush up on his bridge.

Which recalls **Russ Hodgson's** old story about the oil man at the bridge party who never took a trick all evening, but took a cute little one home.

And did we ever tell you about the woman who fell in the stove without getting injured in the slightest. She didn't know how to cook.

Then there was **Red Wilson's** story about the crook who escaped the bloodhounds because he was anemic.

"I want to introduce you to a crackerjack equipment salesman," said **Henry Brett,** and **Frank Boyd** replied, " 'Sno use. We don't use any crackerjack in our business."

And a roustabout who shall be nameless recently contracted a bad cold standing on a cement floor with his bare head.

While **Clarence Burt** tells an unbelieveable tale about a golf foursome in which one of the players was a dentist. Every time, just as he was about to putt, he remarked, "A little wider please."

Bill Whaley here explains, much to our astonishment, that the peculiar odor in the post office is due to the accumulation of dead letters.

And have you noticed that the more a man is oiled the louder he squeaks?

A Brea gauger has gone crazy over a good looking girl out in the neighborhood, and was heard to remark a few days ago that he loved the girl so much he worshipped the very ground her father discovered oil on.

"You look so much like another fellow I know I can't tell you apart," said the pumper, and **Ed Carter** answered, "I hope you didn't give him back the five bucks you borrowed from me last summer."

"Dick Shinn says most men are best at sports between the age of 25 and 30. That's right. A golfer, for instance, has to be old enough to have a business to neglect.

And there never existed a better degree of co-operation than is to be found in industry at the present moment. As **Marion Dice** says, even the Macaroni companies are putting their noodles together.

George Tompson, the Polvadero agriculturist, (he does it with a niblick) informs us that the work of a recent comer to Kettleman Hills was so obviously worthy of notice that that gave it to him—two weeks.

On the other hand **Jack Reed** of Rio Bravo fame is distinctly of the opinion that deep drilling augurs well for the future.

Also at no added cost, the compliments of the season.

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Field Development

Los Angeles Basin

Twenty Wells Drilling In Wilmington Area

Activity in the Wilmington section of the field is holding even with about twenty wells drilling, new locations approximately balancing the number of completions. Daily average production increased slightly to 62,536 bbls., threatening the peak established Sept. 14, when a high of 63,842 was recorded. Drilling wells are about evenly divided between the larger companies: Union Pacific, Bankline, and General Petroleum, operating in the south and east sections and the independents whose activities are largely in the west and northwest flanks of the field. The northwest outpost well, Brookline Oil Co. (Pongratz) Webb Comm. No. 1 has had trouble with the surface cement job and has lost time due to the necessity for recementing. Total depth is 3685 ft. and 8⅝-in. casing is set over the Ranger zone at 2970 ft. As this well appears to be no lower structurally than those to the southeast, several other operators are now drilling in the immediate vicinity.

Major companies again took top honors for completions, Union Pacific obtaining the largest production in No. 59 which was brought in flowing 933 bbls. from the upper Terminal and Ranger zones and General Petroleum taking second place with Isco A-5 which came in flowing 795 bbls. from the same horizons. The latter well was plugged from 5717 ft. when no productive sands were found below the upper Terminal.

Gravel Packing

Small wells were completed by several independent companies, the largest being Royalty Service K-1 at "L" and Lakme streets which came in flowing 350 bbls. of 16.5 gravity clean oil. Bottomed at 3644 ft., the 8⅝-in. casing was set at 2986 ft. and the 6⅝-in. liner "gravel packed."

St. Helens Montebello Deep Well Produces

With the completion of Monterey No. 20, Dec. 19, St. Helens Pet. Co. made what may prove to be the year's most important Basin discovery. An old producer located in the west end of the field, the well was deepened to 6353 ft. encountering Miocene sands which probably correspond to the Nutt zone in the eastern extension area. An 8⅝-in. water string was landed at 6221 ft. and cemented at the shoe and through perforations at 5400 ft., the latter job to protect upper oil sands cored but not tested. A perforated liner was landed on bottom and the well swabbed in at an estimated rate of 2500 bbls. per day of 36.0 gravity oil cutting 50.0% and 4,000,000 cu. ft. of gas. The bean is 65/64-in. and the pressures 500 lbs. on the tubing and 1500 pounds on the casing.

As results of the shoe test were inconclusive, only a provisional OK being granted by the Division of Oil and Gas, it is probable that a water shut off has not been obtained and that it will be necessary to kill the flow and recement the 8⅝-in. casing.

Opposition to licensing by the State of New York of service stations and to the grading of gasoline by law was voiced by oil industry representatives at hearings in New York last week before a legislative investigating committee.

Santa Fe Springs Union Test Quiet

Santa Fe Spring's deep test, Union Bell No. 100, has so far proved a disappointment in that continued swabbing has not caused the well to flow. The fluid, consisting of light, oily mud has been lowered to 8000 ft. and shows but little tendency to rise.

As much gas was in evidence while drilling, some observers believe that the present unimpressive showing is due to to high temperatures hardening the circulating mud and cementing off the oil sands.

Signal Hill Show North of Fault Line

Supporting the theory that production may be obtained north of the fault paralleling the north slope of Signal Hill, Hathaway No. 1 of the Shell Oil Co., has entered a second oil bearing formation at 4770 ft. Located to the north of Reservoir Hill and 700 ft. from the nearest wells, the first oil sands cored at 4350 ft. proved to be wet and indicated a typical edge condition. Coring is now in progress below 4830 ft. in shale with streaks of oil sand.

Four recent Long Beach completions are credited to the Richfield Oil Co. Malcolm-Davis No. 5 at Willow and Walnut was completed in the Alamitos zone pumping 140 bbls. of clean oil from 2750 ft.; R. L. M. No. 2, a Reservoir Hill redrill job, was recompleted in the Brown zone at 5008 ft. pumping 129 bbls.; McKeon No. 4 was good for 75 bbls. from the Alamitos and Denni to No. 11 on the crest of Signal Hill is pumping 24 bbls. a day from 2960 ft. The company is now drilling Hass No. 19 and Malcom-Davis No. 6.

Production Data Near At Long Beach Harbor

Operators in the Long Beach Harbor area will soon know the answer to the all important question of the productive possibilities in the newly opened port district as 1960 Comm. No. 1 of the Superior Oil Co. is coring for the tar zone at 2414 ft. and Allied Petroleum No. 23 is preparing to core at 2200 ft. Both wells are located on what is considered an extension of the apex of the Wilmington structure, the Superior's test being near the entrance channel while Allied is located several blocks to the east.

Closely following the leaders are three General Petroleum projects: Blinn No. 1 at 1676 ft., Harbor Comm. No. 6 at 1926 ft. and S. P. No. 2 at 1685 ft.

Located in different parts of the field, these wells will go far towards proving or disproving the entire harbor area. Blinn No. 1, located on a southerly projection of Santa Fe Ave. approximately 1700 ft. south of Anaheim, will give valuable data as to northerly trend while S. P. No. 2 and Harbor Comm. No. 6 will prospect the central and southern portions. Somewhat later in starting, but of equal importance in determining structure and productive possibilities is General Pet's Channel Comm. No. 3 located near the intersection of 7th and Pico Ave. This well is now drilling below 1300 ft.

Other wells preparing to spud are General Petroleum Harbor Comm. No. 1, Superior San Carlos No. 1, Bankline U. P. No. 2 and Camniol No. 1-6.

Selegna Testing Near Chino Field

Playing for a commercial accumulation in the area near Chino in San Bernardino county, Selegna Drilling & Producing Co. has spudded in a wildcat well in section 12, 3-8 near the second well drilled by Western Gulf on the Abacherli property. The company has acquired all the former holdings of Western Gulf and will continue the search for oil in paying quantities which originated with the Chino-Corona United and Mahala Oil & Gas companies more than ten years ago. Later Gulf took over the original Mahala leases, drilling two wells, each of which produced small quantities of oil.

LOS ANGELES BASIN WILDCATS

Los Angeles County

Area	Well	No.	Section	Depth	Status
Bellflower	Clayton, G. L. Scott	1	32, 3-12	6240	Prep. to resume dlg.
Brea	Pressel, Perry, Tull	1	30, 2-9	4535	Bailing mud
Castaic	Royal Land Corp.	1	8, 4-17	125	Drilling
Gardena	Texas Co., Gardena	5-1	30, 3-13	4356	Drilling
Monterey Park	Monte Cristo-Garvey	1	27, 1-2	2375	Drilling
Minte Cnyon	Christien, J. P.	1	7, 4-14		Rig
	Mint Canyon Pet. Co.	1	33, 5-14	710	Drilling
Newhall	West Coast Dev. Co.	1	27, 4-16	1260	Drilling
	Barnsdall O. Co., R.S.F.	1	26, 4-17	5900	Drilling
Palmdale	Antelope Valley Pet.	1	17, 6-12		Rig
Palos Verdes	Gene McLaren	1	27, 4-14	3992	Redrilled to 1930—Idle
	Hunter, Devlin et al	1	17, 4-14	5500	Plug 5262 Testing
	Rolling Hills Pet.	1	27, 4-14	1375	Drilling
Pico	British Am. O.P. Co.	1	12, 2-12	3990	Idle
Pico Canyon	Burt, A. G.	1	36, 4-17	2490	Fishing bit
Puente	Julien, C. A., Koch	1	5, 2-9	2950	Fishing
Towsley Canyon	Towsley Canyon O. Co.	1	8, 3-16	4008	Drilling
W. Long Beach	Alford Dev. Co., C.Y.	1	22, 4-13	5700	Drilling
W. Coyote	Severns Drlg. Co.	1	24, 3-11	7272	Redrilling 1900

Orange County

Anaheim	Shell O. Co., Harbeson	1	9, 4-10	8575	Drilling

San Bernardino

Chino	Selegna Drlg. & Prod. Co.	1	12, 3-8	565	Drilling

7 El Segundo Wells Boost Output 5000

Completing seven wells, four El Segundo operators have added more than 5000 bbls. of new production during the past two weeks. The Standard Oil Co. in bringing in three achieved distinction for completing the largest, the smallest and the greatest number, while the two Wilshire wells are the most consistent.

Highest initial rate was registered by Standard's Refinery No. 6 which was "drilled in" using oil as circulating fluid, the first 24-hour gauge being 2343 bbls. of clean 26.5 gravity oil. A total of 165 ft. of conglomerate and schist formation is open to bottom at 7215 ft. Other completions by Standard are No. 4 which is pumping 200 bbls. of 14.0 gravity oil and 300 bbls. of water from total depth of 7474 ft. and No. 5, a 400 bbl. clean gas lift well. This well penetrated the schist from 7035 to bottom at 7185 ft.

Across the road to the north of Standard's No. 5, Richfield swabbed in McCray No. 1 flowing 1033 bbls. a day of 22 gravity clean oil, the schist being open from 6970 ft. to 7235 ft., the low gravity being in part due to the greater amount of formation open.

Bringing in the Copinger-Wallace No. 2 "bare foot", the Sunshine-Government Oil & Refining interests obtained a 1390 bbl. flow for three days before the tubing plugged killing the well. The oil tested 24.2 gravity and contained 8% water. A perforated liner is being run to bottom.

The field's northern outpost, Richfield Santa Fe B-1 has not showed to good advantage on a series of formation tests made to determine the advisability of setting a string of casing, recovery being only mud with a negligible quantity of free oil. The hole has been carried to 7539 ft. after coring the top of the conglomerate at 7450 ft. and the schist at 7515.

Seven wells are now drilling in or close to the "pay zone" and should be on production within two weeks.

The volume of refined products now equal within a fraction of one per cent the volume of crude oil run to the stills.

More petroleum asphalt was used in 1936 than in any other previous year.

San Joaquin Valley

Standard May Open New Valley Floor Field

Promising another valley floor field for the first part of the new year, Standard Oil Co. KCL 15-1 in sec. 27, 30-26 has concluded a formation test which indicates the area two miles east of the Ten Section field is destined to become the next discovery of importance in California.

While coring continuously below 8000 ft., the top of a well saturated sand body was picked up at 8037 ft., the same formation continuing to bottom at 8070 ft. Difficulty was experienced with caving shoulders but a successful test was finally made in which several stands of high gravity oil were recovered beneath the mud cushion.

Similar in aspect to the Stevens sand, productive at Ten Sections, the newly discovered horizon is apparently capable of substantial yield and will probably contribute the first new field of the new year.

Guijarral Hills, Fresno Co.

On a line between Kettleman North Dome and Coalinga East Side fields, the Petroleum Securities Co. has made a location for an important wild cat in sec. 18, 20-16. The well, to be known as Gatchell No. 2, will be drilled three miles northwest of Ladd No. 1 drilled by the same company in sec. 28 to a depth of 7383 ft. several years ago.

SAN JOAQUIN VALLEY WILDCATS

Fresno County					
Coalinga	Petroleum Sec., Gatchell	2	18, 20-16		Lacation
E. Coalinga	Pure Oil Co., SPL	1	31, 18-17	9290	Drilling
Cantua Creek	Western Gulf SPL	4	3, 17-15		Rig
Ciervo	Superior O. Co., C.U.P.	1	20, 16-13	50	Drilling
Clovis	Central Valley O. Co.	1	1, 12-20	356	Drilling
Jacalitos Hills	Jacalitos Pet. Co.	1	14, 21-15	5500	Drilling
	Dauphin Dev. Co., Boone	1	30, 21-14	3350	Drilling
Panoche Hills	Gautier, J. A. Hubbard	1	12, 14-11	550	Idle
San Joaquin	Union Oil Co., Nicholson	1	17, 15-15	850	Drilling
Kern County					
Arvin	General Pet. Co., Pauley	1	22, 31-29	500	Idle
	General Pet. Co., Houchin	1	27, 31-29	7928	Plug 7361, Flows 107b/d
	Petrex, Inc.	1	32, 31-30	2000	Drilling
Belridge	General Pet., St. Helens	1	12, 28-20	5175	Drilling
	Ohio Oil Co., Ford	1	6, 29-22	1600	Drilling
Buena Vista	Ohio Oil Co., KCL	A-8	32, 31-26		Foundation
Devils Den	Amerada Pet. Co., Beer	5	22, 26-19	5434	Drilling
	Little Major O. Co.	1	36, 25-18	50	Drilling
Edison	Westbrook	1	4, 30-29	3558	Pumping 35b/c 15.0 60%
	Johnson, G.W. Brown, pallate	1	33, 29-30	490	Drilling
Greeley	Continental KCL B	1	12, 29-26	10205	Redrilling at 8670
Lamont	Section Six O. Co., Johnston	1	6, 31-29	7385	Drilling
McFarland	Shell Oil Co., Keystone	1	4, 26-27		Lacation
McGunden	Standard O. Co., Routzong	1	2, 30-28	5790	Drilling
McVan	Golden Bear O. Co., Chaflin	1	10, 27-27		Lacation
	Scottell Oil Co.	1-A	14, 27-27		Lacation
Mt. View	Texas Co., Bastian	1	34, 30-29	625	Drilling
Poso Creek	Pebble Beach O. Co., Newhope	6	29, 27-27	2642	Redrilled 2515
	No. American O. Cons.	1	26, 27-27		Rig
San Emigdio	Shell Oil Co. KCL	4-26	26, 11-22	1660	Drilling
Temblor Hills	Chico Martinez-Exeter	2	1, 29-20		Rigging up
Wasco	Continental O. Co., KCL	A-2	8, 27-24	11584	Redrilled 11,577 Fishing
Kings County					
Pyramid Hills	Pyramid Prod. Co., Retherford	1	27, 24-18	1500	Rrilling
Kettleman	Temblor O. Co., Bunting	1	25, 23-18	9138	Testing
Tulare County					
Trico	Standard O. Co., Morris	1	36, 24-23	10950	Drilling

Fresno Co. Wildcats Still Lack Showings

Taking up where it left off six months ago, the Western Gulf Oil Co. is preparing to drill its fourth exploratory well on Southern Pacific Land Co. property in the Cantua Creek area, the location selected falling in sec. 3, 17-15, approximately 800 ft. north of well No. 3. This well was carried to 8530 ft. in Eocene and plugged back to 6950 ft. where a test with the hole open in the Temblor horizon from 6450 to 6500 ft. indicated a possible 300 bbl. 35 gravity oil production with a like amount of water. When all attempts to shut off the water ended in failure the well was abandoned, no further work being done until the present.

Northeast of Coalinga

Ten miles northeast of Coalinga in sec. 31, 18-17, Pure Oil Co. is drilling below 9150 ft. in hard gray shale. The top of the McLure Shale (upper Miocene) was noted at approximately 6900 ft.

Ciervo Hills

In the Ciervo Hills area, the Superior Oil Co. is getting under way with Ciervo Unit Plan No. 1 located in sec. 20, 16-13, 20 miles north of Coalinga. Although being drilled by the Superior, Chanslor-Canfield Midway Oil Co. is also a party to the venture.

Jacalitos Hills

Two wells are now active in the Jacalitos Hills; Jacalitos Petroleum Co. headed by Dana Hogan of Los Angeles, is drilling below 5550 ft. and Dauphin Development Co. when last reported was at 3310 ft. The wells, located respectively in section 14, 21-15 and section 30, 21-14, have not yet encountered showings of importance.

In section 17, 15-15, Union Oil is ready to spud Nicholson No. 1.

Standard Morris Is Last in Tulare

Activity in Tulare County struck a new low with hte abandonment of the J. F. Wilcox, Sears No. 1 wildcat in sec. 29, 24-28. Instead of the expected oil sand, schist was struck at 865 ft. and operations immediately suspended leaving the Standard Oil Morris No. 1 in sec. 36, 24-23, the only drilling well in the entire county. The latter well, a deep test of the Trico gas producing area, is now coring below 10,900 ft.

Greeley Outposts Show Little Production Promise

Outlying wells of the Greeley area are not faring so well, Standard KCL in sec. 9, 29-26 to 7855 ft. finding only barren gray sand and shale with the top of the last sand body noted at 7825 ft. and Superior Krause No. 1 in sec. 21 approaching 7800 ft. with no showings.

Believing that production may be found a mile east of present limits, the Mohawk Petroleum Co. has announced its intention to drill the Oceanic Nord lease in the nw¼ of sec. 15. Most easterly producing well is now Standard's 12-2 near the w¼ corner of sec. 16. With a 17/64-in. bean holding the flow pressure to 775 pounds and the casing pressure to 1600 pounds the present rate of production is 650 bbls. of clean 32 gravity oil and 465,000 cu. ft. gas.

In the Bellevue area south of Greeley, Superior Oil is still endeavoring to make a producer of KCL 9 in sec. 3, 30-26. The well is now standing cemented thru perforations at 7550 ft. in an attempt to eliminate the inflow of salt water that so far has prevented completion.

Superior's KCL 10 in the same section is now coring below 8300 ft. with out having picked up the oil sand found in No. 9 at 7560 ft.

Continental Oil Co. has made a location for KCL D-1, an exploratory well to be drilled in sec. 10, 30-26, a mile south of the Superior tests.

Bunting No. 1 Feature In Middle Dome Tests

Most interesting of the tests scheduled for the near future is that to be made in Temblor Oil Co.'s Kettleman Middle Dome, Bunting No. 1, located in sec. 25, 23-18. Drilling was stopped at 9100 ft. and 1000 ft. of 4¾-in. liner was run to test for Temblor production. The Temblor was topped at 8090 ft. and again at 8920 ft. after passing through the upthrown side of the fault although formations below 8100 ft. are said to show gas and light oil, drill tests to date have recovered only gas cut mud.

Plug Back Deterding No. 1 In Rio Vista Gas Field

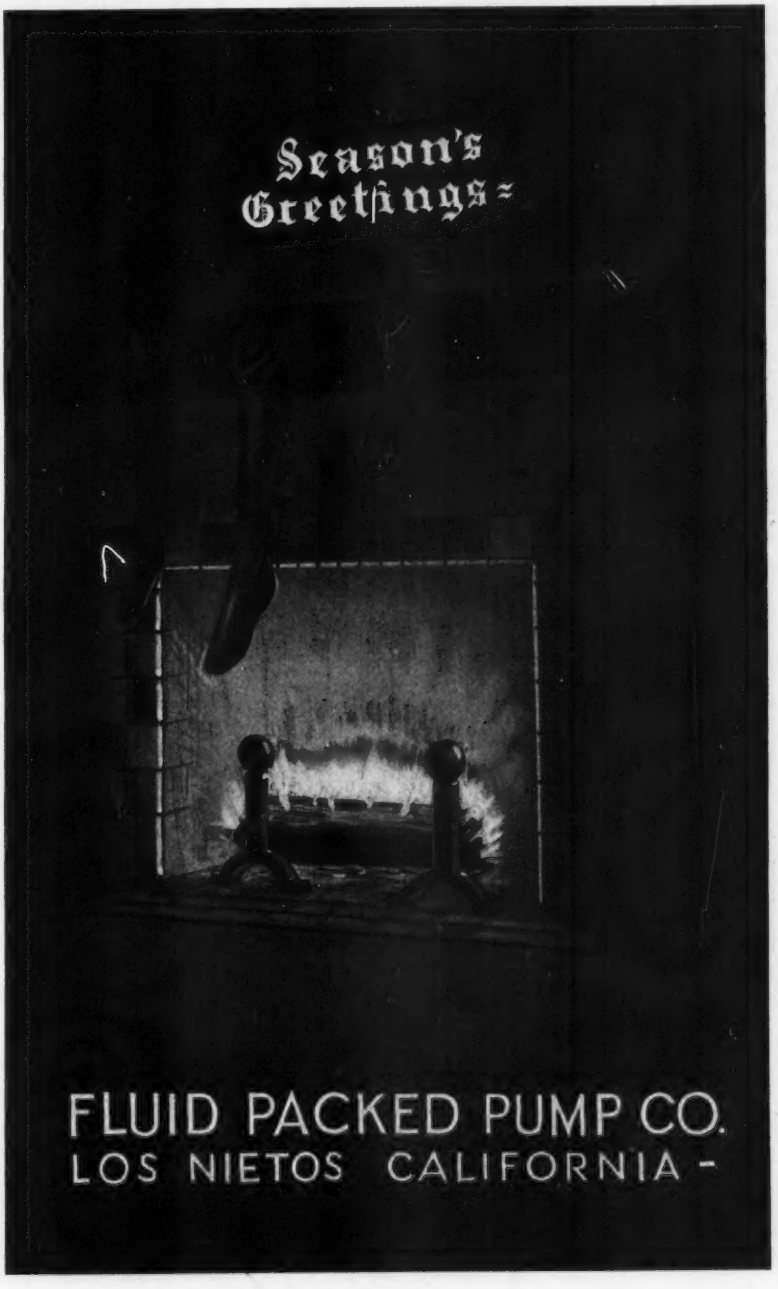
After production tests indicated the presence of water in Amerada Petroleum Co.'s Deterding No. 1 in sec. 36, 4-2, the company is attempting to pull the liner to plug back from the 4377 ft. bottom.

In the same section, Tracy Drilling Co. is drilling Hanson No. 2 below 3760 ft.

Abandon Continental Grubb No. 8 Bad Hole

Plugging bottom from 6028 to 5980 ft. Continental Oil Co. completed Hobson No. 4 in the Padre Canyon field pumping clean 29.8 gravity oil at the rate of 165 bbls. a day.

Because of mechanical troubles caused by a bad fishing job, Continental abandoned Grubb No. 8 at San Miguelito and has skidded the rig 20 ft. to spud No. 8A which is now drilling below 2200 ft.



Poso Round Mountain Outposts Dry

Despite the many important extensions of the Mount Poso and Round Mountain fields, the dry hole rate among outpost wells continue to be high, eight being abandoned in recent weeks.

In the vicinity of Mount Poso, Lowden No. 2 of the Ring Oil Co., located in section 32, 26-28, produced water and a small quantity of oil from a total depth of 1765 ft. but was given up when it became apparent that it could not be profitably pumped. In section 31, 27-28, Summit Oil Co. abandoned at 2717 ft. after finding the Vedder barren at 2690 ft.

Pacific Oil & Gas Dev. Co. Davidson No. 2 encountered the barren Vedder at 2890 ft. and abandoned after a 10 ft. penetration.

Paul Travis drilled Giffen No. 1 in section 10, 27-28 to 1335 ft., abandoning when the zone was found to contain only a thin streak of heavy oil sand at 1295 ft.

Near Round Mountain, Freemont Oil Co. abandoned Olcese No. 2 in section 35, 28-29 at 2775 ft. before reaching the Vedder zone, Crestmont Oil Staley No. 1 in section 8, 28-29 drilled 20 ft. into wet Vedder sand to 1877 ft. and Rowpet Oil Co. in section 24, 28-28 abandoned after topping gray sand at 2360 ft.

South of the field, the Tavis well in section 4, 29-29 was deepened by the Los Angeles Construction Co. to the Walker which was penetrated from 3310 to 3700 ft. before abandoning.

Reserve Grapevine Surprise Producer

After making 5,000,000 cu. ft. of gas on a production test with only eight feet open below the shoe of the 8⅝-in. casing at 4435 ft. Universal Consolidated deepened Reserve No. 1 in sec. 33, 11-19 to 4468 ft. where a 6⅝-in. perforated liner was landed and the well brought in Dec. 19, flowing an estimated 150 bbls. of clean 24 gravity oil and 2,000,000 cu. ft. gas through a ¼-in. bean. Located in an area all but condemned by several previous tests, the net result of which was one gas well and a 20-bbl. pumper, the new well justifies the faith and persistent efforts of the Reserve Oil Co. Universal Consolidated Oil Co., Wilshire Oil Co. and Barnhardt-Morrow, who jointly drilled the well with the former company doing the actual work.

General Houchin 1 Is Arvin Producer

Hardly ranking in importance with recent discoveries near Ten Section and Greeley, but nevertheless of great significance, is the development of commercial production at Arvin where General Petroleum Houchin No. 1, sec. 27, 31-29, was reperforated in the zone 7300-7350 ft. and is now flowing at the rate of 157 bbls. a day of 31 gravity clean oil.

Drilled originally to the granite basement at 7828 ft., the hole was plugged an dtested by stages, no quantity of oil being recovered except in the present producing interval with the 6⅝-in. casing plugged to 7361 ft. Pauley No. 1 in section 22 will resume drilling immediately, after a short period of idleness at 500 ft.

Petrex, Inc., No. 1 well in sec. 32, 31-30, which has been idle at 1910 ft., will probably deepen on the strength of the new discovery.

Location Near Devils Den

Near Devils Den in sec. 36, 25-18, Little Major Oil Co. has made a location for a well to be known as Jester No. 1.

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Two New Tests For Rio Bravo Horizon

Two wells are now drilling for the deep Rio Bravo sand in the worlds deepest oil field. Union Oil Co., discoverer of the zone, is drilling Kernco No. 34-2 below 1900 ft. and Superior is making hole in Wagner No. 1 below 2300 ft.

New locations have been staked by General Pet., Getty and Superior, all in section 25, 28-25.

Kernco No. 1 in sec. 34 is now flowing 2600 bbls. a day of 37.8 gravity oil cutting 0.2% thru 23/64 in. orifice with 1750 pounds on the tubing and 2110 pounds on the casing. Total depth is 11,302 ft. with the hole "bare foot" below the casing shoe at 11,220 ft.

Cal. Western Raises Round Mt. Output

Adding 410 bbls. of new production to California Western's Round Mountain total, well No. 9 in sec. 12, 28-28 has been brought in as another 15.0 gravity clean pumper. The 8⅝-in. water string was cemented at 1948 ft. and a 6⅝-in. perforated liner is landed on bottom at 1981 ft.

Kernco No. 4 is being drilled in section 13 near the abandoned wells drilled by St. Helens ten years ago.

H. A. McDonald has spudded his third extension well, Larkin No. 2 in section 12 and D. G. Vedder is drilling Bell No. 3 with locations already chosen for Nos. 4 and 5.

KNDA 4-185 Fishing Job May Sidetrack Deep Test

With Huffman No. 5 entering the Avenal sand at 10,225 ft., Superior Oil Co. became the second to reach the Eocene at Kettleman Hills North Dome. Although the sand appears to carry fair saturation, a formation test of the interval 10,060-10,300 ft. recovered only 700 ft. of gassy mud. The well is now being deepened below 10,370 ft.

KNDA 4-18J, discoverer of the Avenal sand from which it produced more than 1000 bbls. a day, was deepened to 11,746 ft. where a string of drill pipe was lost, tying the project up in a serious fishing job. The Eocene was topped in this well at 10,715 ft. and as the last 1000 ft. of fish is the toughest, the association is contemplating recompleting in the Avenal sand rather than continuing with the deep test.

Most Northerly Test Set For North Willows

As a result of a thorough geological and geophysical survey, the Ohio Oil Co. has spudded in a test well located on the Willet Property in section 18, 20n-1w, Glenn County. When last reported, depth was slightly below 3100 ft.

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Frank Jones Extends Santa Maria Valley

Indicating that commercial production extends at least as far south as the Gallison lease in the south half of sec. 26, 10-34, Frank Jones has completed his first well in the Santa Maria Valley with initial estimated between 500 and 1000 bbls. After topping the Franciscan at 5196 ft. the well was plugged back to 5104 ft. and 8⅝-in. casing cemented at 4545 ft. Formation tests showed water entering the bottom so the hole was replugged to 5090 ft. before running the 6⅝-in. perforated liner which was hung at 5087 ft.

Still farther south and half a mile east, Petroleum Securities is coring hard shale below 4450 ft. The top of the Monterey should be found in this well near the 4800-ft. level.

Sharing the Santa Maria spotlight with the Frank Jones well are the E. H. Moore wells in the western extension. Union Sugar No. 4, 1500 ft. southeast of No. 2, the first producer obtained west of the established production in sec. 21, has cored the top of the Monterey at 5083 ft. and has bottomed at 5727 ft. The 8⅝-inch casing is set at 5115 ft. Tubing is being run preparatory to completing on the pump.

Union Sugar No. 5, southern most extension well, is coring below 5800 ft., without having yet encountered the Monterey.

Offsetting Union's 150 bbl. LeRoy No. 2, Union Sugar No. 3 has been completed after penetrating 200 ft. of Monterey to the top of the Franciscan at 5300 ft. A perforated liner was landed on bottom and the well pumped in at a 65-bbl. rate.

Two wells have been recently completed in sec. 21. Pacific Western finished No. 5 on the Hobbs lease pumping 691 bbls. a day and Union pumped in Vicente No. 1 offsetting J. E. O'Donnell Lloyd No. 1. Vicente No. 1 set 8⅝-in. casing at 4404 ft., 20 ft. in the Monterey and bottomed at 4818 ft., penetrating the schist basement 25 ft. Initial production was gauged at 475 bbls. of 17.1 gravity oil cutting 4.1%. In the same section, Ohio is preparing to drill Moretti No. 3 near the center of the southeast quarter, a quarter of a mile east of Pacific Western's Hobbs No. 5.

"Hot Spot"

Development in sec. 27, the "Hot Spot", continues at a rapid pace with Sunshine Oil Co. and Pacific Western in the process of completing a well each and three others drilling. Dal Porto No. 2 of P. W. after setting 9 in. casing at 3960 ft. drilled 6 ft. into the Franciscan to 4256 ft. and is rigging pumping equipment.

Sunshine Oil Co. in Wallace No. 2 cored Monterey from 4000 ft. to the top of the Franciscan at 4387 ft. and after landing a perforated liner on bottom at 4404 ft. is being pumped in with first production estimated at 1500 bbls. a day. Derrick is up for Wallace No. 8.

Wells now drilling in section 27, are "Dick" Mitchell's second Yelkin-Wilson

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well, Signal Oil & Gas Ranalho No. 1 and Dugan Oil Co. Yelkin No. 1.

Near the west quarter corner of the northwest quarter of section 26, Signal Oil & Gas is completing Highway Comm. No. 1 after coring the top of the Monterey at 4087 ft. and the Franciscan at 4378 ft.

Two wells are now drilling in section 25, Bush-Hancock Hopkins No. 3 below 3800 ft. and Union Bradley Lands No. 2 below 4190 ft.

Another attempt is being made to develop good production in section 23 with the drilling of Fred Cole No. 16 in the Newlove Acres tract. When last reported the depth was 725 ft.

Shell Anaheim Well Coring Below 8565

Harbeson No. 1, Anaheim wildcat of the Shell Oil Co., is coring below 8565 ft. with formations continuing to be shales with streaks of gray sand. Formation tests indicated the upped showings to be definitely wet, and no production test is being contemplated unless a larger body of sand with good saturation is encountered.

COASTAL COUNTIES WILDCATS

Santa Barbara County					
Cat Canyon	Standard O. Co., Los Flores	1	27, 9-33	2280	Drilling
Gaviota	Gaviota O. Co., Hollister	1	35, 5-33	3205	Shut-in—Gasser
	Wilshire O. Co., Hollister	1	35, 5-33		Foundation
Refugio	Tweedy, A. E., Penn.	1	34, 5-31	200	Drilling
Santa Rita	O. C. Field Gas. Co., S.R.	1	11, 7-33	3360	Plugging
Summerland	Gauthier Oil Co.	17-1	22, 4-26		Rig
San Luis Obispo County					
Cuyama	Little Cuyama Oil Co.	2	3, 10-26	3820	Abandoned
Paso Robles	Ajax Land & Dev. Co., Moss	1	27, 26-13		Rig
	Vanguard Oil Co.	1	14, 37-14	2000	Drilling
Ventura County					
Bardsdale	Little Canyon-Snodgrass	1	32, 4-19	1305	Rig to deepen
	Union Oil Co., Robertson	16	12, 3-20	6804	Pulling liner
Camarillo	Richfield O. Co., McFarland	1	13, 1-21	6260	Drilling
	So. Calif. Drlg. Co., Daly	2	26, 2-21	3090	Drilling
	Texas Co., Edwards	1	19, 2-21	4795	Drilling
Oxnard	Oxnard O. Co., Vanoni	1	10, 1-22	6302	Plug 6200, Rig. up
	Vaco O. Expl. Co., Lennox	1	6, 1-21	2885	Testing casing
Ojai	High Mesa Oil Co.	1	16, 4-22	1200	Drilling
Red Mountain	Arnett, Frank E.	3	15, 4-21	1167	Drilling
Sespe	Colima Oil Co., Burge	2	29, 5-19	3497	Drilling
	Commander O. Co., Temescal	6-F	13, 4-19	1975	Drilling
		7-F	13, 4-19	215	Idle
	Condor Oil Co.	1	6, 4-19	2195	Cleaning out
	Skyline Oil Co.	6	13, 4-19	1985	Drilling
	Speik Oil Co.	1	33, 5-19	3430	Drilling
	Terry, Geo., et al	1	23, 5-20	1340	Cleaning out
	Williamson Oil Co.	1	1, 4-20	540	Idle
Simi	Trucano, Germanina	1	5, 2-17	275	Drilling
Shiells Canyon	Texas Co., Shiells	134	4, 3-19	4432	Testing
South Mt.	Texas Co., Richardson	5	13, 3-21		Rig foundation
Tar Creek	Section 20 Oil Co.	1	20, 5-19	1038	Drilling
	Topa Topa Oil Co.	1	33, 5-19	4590	Plug 3300, Rig. pump
Timber Canyon	Stallings, Senter, Ahlberg	1	24, 4-21	289	Drilling

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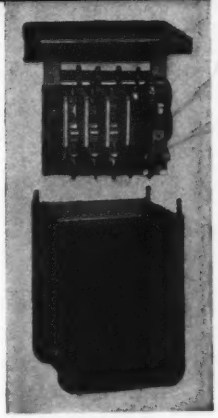

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State Drilling Report

NEW WELLS

Field	Company	Well	No.	Sec.	Twp.	Range
Coyote Hills	F. E. Fairfield	Dutton	1	22	3S	9W
Brea-Olinda	Shell Oil Co.	O. L. C.	H	16	3S	9W
San Bernardino Co.	Selegna Petroleum Corp.	Abacherli	3	12	3S	8W
Simi	Mrs. Germanina Trucano	One	1	5	2N	17W
Casmalia	Prima Drilling Co.		1	13	9N	35W
Devils Den	Little Major Oil Co.	Jester	1	36	25S	18E
Sunset	Merritt Annex Oil Co.	Fried	7	25	12N	24W
	Iriquois Oil Co.		2	7	11N	23W
Fruitvale	Western Gulf Oil Co.	30-KCL-B	14		29S	27E
Rosecrans	Barnsdall Oil Co.	O'Dea	19	18	3S	13W
Santa Barbara Co.	Wilshire Oil Co., Inc.	Hollister	1	35	5N	33W
McKittrick	Roelma Oil Co.		1	20	30S	22E
Greeley	Standard Oil Co.	KC-11	8-A	18	29S	26E
		KC-12	4	16	29S	26E
Kern River	Standard Oil Co.		27	15	28S	27E
Mt. Poso	Sunset Oil Co.	Sunset 3	1	3	27S	28E
	Shell Oil Co.	Security	22	16	27S	28E
Fresno Co.	Superior Oil Co.	C. U. P.	1	20	16S	13E
Kettleman North	K. N. D. A.		72	4	22S	17E
	Standard Oil Co.		41	7	22S	18E
Rio Vista Gas	Tracy Drilling Corp.	Hanson	2	36	4N	2E
Long Beach	The Texas Co.	Bauman	5	19	4S	12W
		Gray	4	20	4S	12W
Dominguez	Shell Oil Co.	Reyes	93	33	3S	13W
	Union Oil Co.	Callender	60	33	3S	13W
	Tidewater Assoc.	De Francis	15	34	3S	13W
Los Angeles Co.	Antelope Valley Pete.	Antelope	1	17	6N	12W
	Monte Cristo Pete.	Ramsey, Bass & Goodknight, Garvey	1	27	1S	12W
El Segundo	Sovereign Oil Corp.	Gov. El Segundo	1	12	3S	15W
	Apex Petroleum Co., Ltd.	Converse	1	12	3S	15W
	The Texas Co.	Security	6	18	3S	14W
Wilmington	Union Pacific R. R. Co.	U. P.	29, 80, 81, 82	4	5S	13W
	Richfield Oil Corp.	Pacific Dock 3, 11 & 13	14	35	4S	13W
		R. G. Terminal	1 & 2	35	4S	13W
	The Superior Oil Co.	L. B. H. Curtis	1	35	4S	13W
	Wilton Oil Co.		3	32	4S	13W
	R. T. Colter & W. G. McAdoo	Colter	3	32	4S	13W
Santa Maria Valley	Union Oil Co.	Acquistapace	1	22	10N	34W
		Bradley Lands	2	25	10N	34W
	Pacific Western Oil Corp.	Samarin	2	27	10N	34W
	The Ohio Oil Co.	Joseph Moretti	3	21	10N	34W
Round Mountain	California Western Oil	Kerneo	4	13	28S	28E
	Dwight G. Vedder	Bell	3	12	28S	28E
	Crestmont Oil Co.	Staley	1	8	28S	29E
Kern County	George W. Johnson	Brown-Pallette	1	33	29S	30E
	Shell Oil Co.	San Emigdio KCL 1-A	4-26	26	11N	22W
Ten Section	Shell Oil Co.	KCL-A	32-29	29	30S	26E
		Canal A	72-14	14	30S	25E
		KCL-B	85-25	25	30S	25E

DEEPEN OR REDRILL

Playa del Rey	Union Oil Co.	Del Rey	10	28	2S	15W
Torrance	E. G. Grubbs		3	14	4S	14W
Santa Paula	Monticello Oil Co., Ltd.		1	21	4N	21W
Sunset	Pattiway Oil Corp.		1	12	11N	24W
Mt. Poso	Vedder Petroleum Corp.	Lambert 29	1	29	26S	28E
Kern River	Oil Incorporated	Seven Spot	3	13	28S	27E
Coalinga	Italo Petroleum Corp.	Peso	5	1	20S	14E
Montebello	St. Helena Petroleum	Monterey	19	2	2S	12W
Ojai	St. Louis Oil Co.	Pirie	1	13	4N	23W
Rincon	Richfield Oil Corp.	Hobson-State	1	17	3N	24W
Greeley	Standard Oil Co.	KC-11	2	20	29S	26E
Fruitvale	Western Gulf Oil Co.	Red Ribbon Ranch	5	27	29S	27E
Santa Fe Springs	Hathaway Co.	Hathaway	1	6	3S	11W
	General Petroleum Corp.	E. G. B.	101-C	5	3S	11W
Long Beach	Chikasan Oil Co., Ltd.	Wolter	1	13	4S	13W
	A. S. Johnston Drlg. Co.rp		19	13	4S	13W
	Exeter Oil Co., Ltd.	Transport	3	30	4S	12W
	The Texas Co.	Field	11	19	4S	12W
Coyote Hills	Standard Oil Co.	Murphy-Coyote	119	13	3S	11W
	Severns Drilling Co., Ltd.		2	24	3S	11W
Huntington Beach	Signal Royalties Co.	Gray Eagle	1	10	6S	11W
	J. O. Oil Co.	Skirvin	1	11	6S	11W
	Standard Oil Co.	P. E.	22	10	6S	11W
Wilmington	Eyer Petroleum Corp.		1	20	4S	13W
	Pacific Western Oil Corp.,	Pet. Sec		33	4S	13W
Ventura	Shell Oil Co.	Taylor	27	28	3N	23W
			12 & 45	29	3N	23W
Midway	The Texas Co.		25	32	32S	24E
	C. C. M. O. Co.		23	36	31S	22E
	Pyramid Oil Co.		14	26	31S	22E
Edison	General Petroleum Corp.	Osborne	1	15	30S	29E
	Monterey Exploration Co.	Duff-Shell	2	15	30S	29E
	Corbett Oil Co., Inc.	Rose	2	23	30S	29E
Mountain View	Shell Oil Co.	Bahrenburg	3	32	30S	29E
	O'Kane & Brain, Inc.	Wright & Bloemer	2	30	30S	29E

ABANDON

Long Beach	Pomboe Oil Co.	Zenith	1	29	4S	12W
	Lee Crumbaugh	Locke	36	13	4S	13W
Mt. Poso	Summit Oil Co.		1	31	27S	28E
	Paul F. Travis	Giffen	1	10	27S	28E
Riverside Co.	J. F. Kosanke		1	15	2S	6W
Moody Gulch	H. V. Covert	Moody	3 & 10	8	9S	1W
	Rhoads & Schmidt	Trigonia	1	8	9S	1W
	H. V. Covert	Trigonia	2, 5 & 7	8	9S	1W
	The Texas Co.	Theta	11-9	11	26S	20E
Lost Hills	Alfred Fuhrman		11	28	28S	28E
Kern River	The Ohio Oil Co.	Derby	1	33	30S	29E
Mountain View	J. J. Tavis	Olcese-Tavis	1	4	29S	29E
Kern Co.	John F. Wilcox	Sears	1	29	24S	28E
Tulare Co.	Fremont Oil Co.	Olcese	2	35	28S	29E
Round Mountain	Crestmont Oil Co.	Staley	1	8	28S	29E
	Rowepet Oil Co.	Rowepet	1	24	28S	29E
Coalinga	The Texas Co.		67	6	20S	15E
			8-19 & 8-20a	30	20S	15E
San Diego Co.	Itasca Petroleum Co., Ltd.		1	33	15S	1W
Huntington Beach	Alma Oil Co.	Alma	1	10	6S	11W
Santa Fe Springs	General Petroleum Corp.	Santa Fe Comm.	177-B	6	3S	11W
Montebello	Wilshire Oil Co., Inc.	Montebello	1	5	2S	11W
El Segundo	Tidewater Associated Oil Co.	Leusinger	1	8	3S	14W
Coyote Hills	Oil Conversation, Ltd.	Jessup	1	17	3S	9W
Newhall	P. B. Anderson		2	1	3N	16W
Mesa	Anacapa Oil Corp.	Low	1	28	4N	27W
Elk Hills	Richfield Oil Corp.	Crampton	2-B, 1-C, 2-C & 11-C	6	31S	25E
	Standard Oil Co.	Tupman	14	36	30S	24E
Midway	General Petroleum Corp.	Buena Vista	2, 3, 4, 5, 6, 7, 8, 9	32	31S	24E
Poso Creek	W. N. G. Oil Co.	Slemon	2	10	27S	27E
Ten Section	Shell Oil Co.	KCL-A	8-28	28	30S	26E
Kern Co.	Vedder Petroleum Corp., Ltd.	Lambert	1	25	26S	27E

Summary	This Week	Previous Week	To Date This Year	To Date Last Year
Total New Wells	28	28	1548	1046
Total Abandoned	17	19	679	772
Total Abandoned	20	26	541	449

California Crude Oil Production

For Two Weeks Ended December 14, 1937

Field	December Daily Quota	Average Daily Production	Excess
San Joaquin Valley			
Belridge—North	16,470	16,730	260
Belridge—South	1,935	1,561	*374
Buena Vista	18,355	17,946	*409
Canal	450	444	*6
Coalinga—East-West	16,845	15,769	*1,076
Coffee Canyon	4,060	5,300	1,240
Edison	3,455	3,831	376
Elk Hills	8,735	10,904	2,169
Fruitvale	8,385	8,485	100
Greeley	3,850	3,561	*289
Kern Front	10,300	10,309	9
Kern River	5,250	2,461	*2,789
Kettleman No. Dome	79,760	82,986	3,226
Lost Hills	4,905	4,137	*768
McKittrick	3,755	4,442	687
Midway-Lakeview	10,915	19,379	8,464
Midway-Maricopa	37,130	38,435	1,305
Mount Poso	17,470	20,422	2,952
Mountain View	15,090	15,629	539
Rio Bravo	450	2,524	2,074
Round Mountain	9,930	12,695	2,765
Ten Section	3,650	3,298	*352
Other Fields	2,765	2,489	*276
TOTAL	283,910	303,737	19,827
Coastal District			
Elwood	6,955	7,860	905
Rincon	2,935	3,118	183
Santa Maria	17,945	14,620	*3,325
Santa Paula-Newhall	5,165	5,000	*165
Ventura Avenue	33,170	35,627	2,457
Other Fields	6,575	7,447	872
TOTAL	72,745	73,672	927
Los Angeles Basin			
Alamitos-Seal Beach	8,950	8,990	40
Brea-Olinda	8,930	6,098	*2,832
Coyote—East	3,080	4,383	1,303
Coyote—West	9,295	9,770	475
Dominguez	25,280	29,996	4,716
El Segundo	7,915	20,090	12,175
Huntington New	16,450	20,970	4,520
Huntington Beach—Old	14,615	17,138	2,523
Inglewood	16,020	16,204	184
Long Beach	52,235	58,120	5,885
Montebello-Extension	7,325	7,498	173
Playa del Rey	7,440	7,951	511
Richfield	8,700	9,377	677
Rosecrans-Athens	2,645	5,172	2,527
Santa Fe Springs	36,690	41,203	4,513
Torrance	6,785	7,374	589
Wilmington	45,700	62,890	17,190
Other Fields	2,055	2,480	425
TOTAL	280,110	335,704	55,594
STATE TOTAL	636,765	713,113	76,348

*—Shortage.

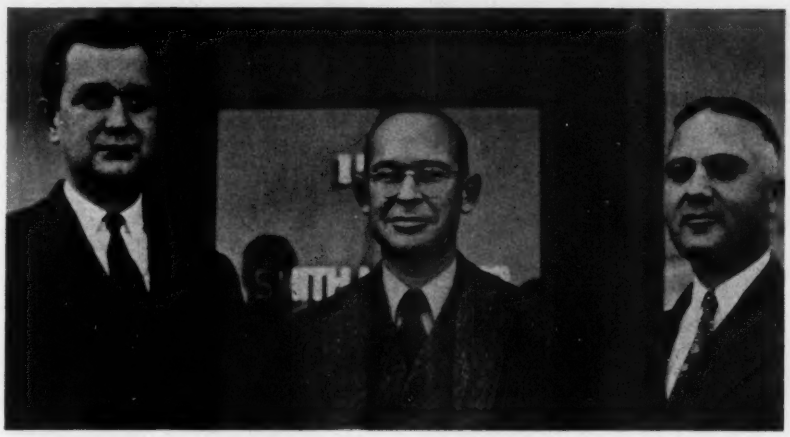
Tests Near Camarillo Still Without Showing

Near Camarillo in sec. 13, 2-21, Richfield Oil Mcfarland No. 1 has passed through the volcanic formations and is drilling below 6350 ft. in a hard gray sand. In the same area, Southern California Drilling Co. Daley No. 2 is drilling in volcanics below 3080 ft. and Texas Co. Edwards No. 1 is approaching 5000 ft. in depth.

Plug Back in Javon

In Javon area, C.C.M.O. Co. Oakgrove No. 2, sec. 23-3-24, was drilled to 7828 ft. and plugged back to 6625 ft. where a 5¾-in. combination string was landed and cemented through perforations at 6043 ft. A swabbing test failed to make the well flow and the well was completed on the pump with production gauged at 45 bbls. per day.

Smith Meter Co. Expands



Left to right: Allan A. Floyd, P. W. Hill and J. A. Doane

To meet demand of the oil industry for their rotary positive-displacement type of fluid meters, the A. O. Smith Corp., of Milwaukee, is expanding the plant facilities and the engineering and sales forces of their Smith Meter Co., in Los Angeles.

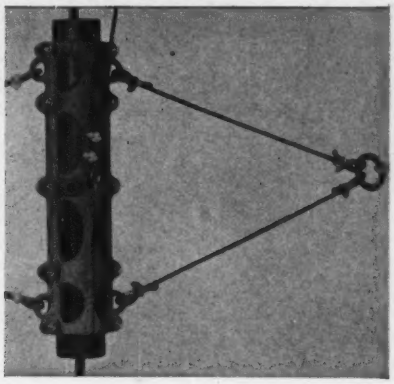
Allan A. Floyd, who has been with the Milwaukee corporation, has been made general manager of the reorganized Smith Meter Co. J. A. Doane, who has been active in the meter company since the company started, will continue as sales manager. P. W. Hill, who has been with the General Petroleum Corp., for the past 12 years, and who has established a reputation in the oil business as a measurement engineer, is the new chief engineer of the Smith Meter Co. The inventor of the rotary meter, R. Stanley Smith, will continue as director of research and development.

While details of the expansion program are not yet available, it is believed that the meter company will soon announce additions to their line which will extend the application of this advantageous type of rapid and accurate fluid measurement device.

Smith Meter Co. has offices in New York, Chicago, Pittsburgh, Tulsa and Houston. U. S. Flexible Tubing Co. is the Pacific Coast distributor for the company.

Hugh R. Lambreth, left, is Lycoming's L. A. sales manager; H. V. Snodgrass, right, is his assistant.

Patterson-Ballagh Wire Line Guide



"No sparks" is an important feature of the new improved Patterson-Ballagh Wire Line Guide, manufactured by the Patterson-Ballagh Corp., Los Angeles. Utilizing the same tough rubber at points of friction as used in the manufacture of Patterson-Ballagh protectors, the guide is made spark-proof no matter how fast the line travels or in what position the guide is set, its makers state.

This product permits uniform spooling of the wire line, eliminates whipping, and increases the life of the line, it is said. It easily can be installed in the derrick.

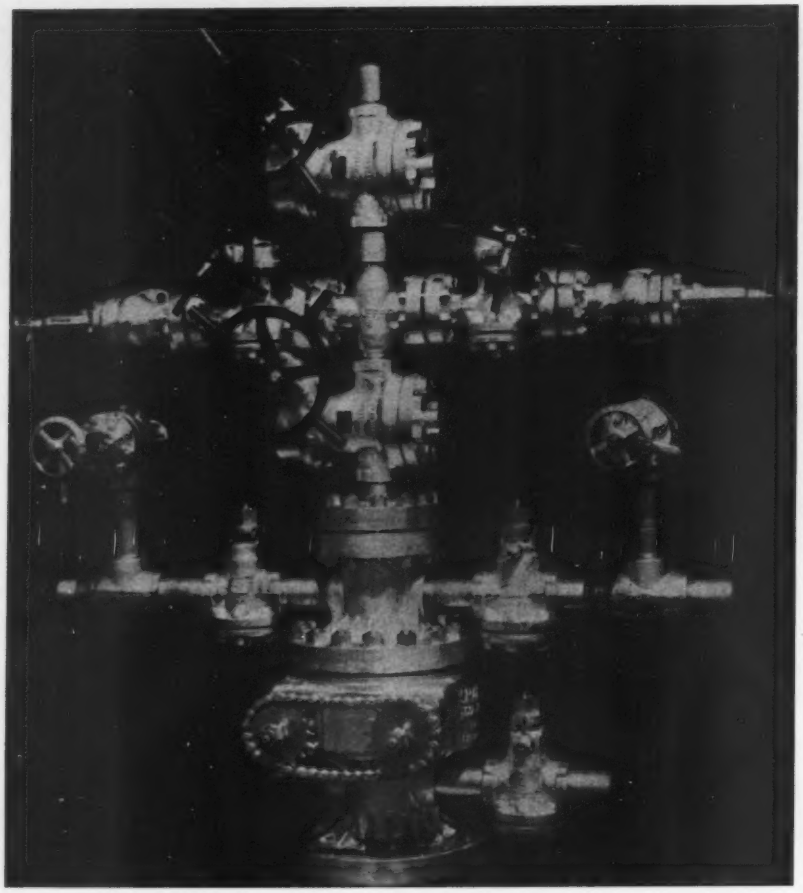
Lycoming Moves Los Angeles Office

New location of Lycoming Natural Gas Engines is 837 East Fourth Place, and is devoted entirely to sales and service of Lycoming engines. Dec. 1, the Bakersfield manager, H. V. Snodgrass, was moved to Los Angeles and will be asssitant to Hugh R. Lambreth, sales manager, from this office. He was replaced at Bakersfield by E. L. Monagin.

The company has a complete stock of engines, together with sales service both at this point and at the Bakersfield store, located at 506 East 19th street, Bakersfield.

In addition to the complete line of oil field units, Lycoming also markets engines for a number of direct power applications, as well as a complete line of engine driven generator units of 10 to 60 Kilowatt capacity.

Merco Nordstrom Valve Installation



The Merco Nordstrom Valve Co. announces that they now have a complete line of round opening, full bore, high pressure valves for use on the vertical members of Christmas trees. Standard rectangular opening Nordstrom Lubricated Plug Valves have been used for a number of years on high pressure Christmas trees. However, the relatively new line of round opening valves now makes it possible for Christmas trees to be built up using Nordstrom Lubricated Plug Valves throughout. Quite a number of oil companies have recently availed themselves of this and are specifying and using Nordstrom Valves throughout on their trees.

The accompanying photograph is of a Christmas tree built for one of the major oil companies and on which the entire Christmas tree manifold is equipped with Nordstrom Valves. Although until recent years the screwed type valve has generally been used on these services, the flanged A.P.I. ring joint valve is being used more and more. Some of the latest trees are completely flanged, eliminating all screwed joints.

These valves are available in all sizes required and are made of alloy steels and for test pressures up to 6000 lbs. Nordstrom Valves for distribution throughout the United States and foreign countries are manufactured in Oakland, California, in one of the most modern plants of this type.

New Temblor Hills Test

The Chico Martinez Oil Co., a new enterprise, is preparing to drill with portable cable tools in section 1, 29-20. Another test of the Temblor Hills, the well will be known as Exeter No. 1.

Wildcat East of Edison

In the foot hills east of Edison, Geo. W. Johnson has spudded a wildcat test on the Brown-Pallette lease in the southeast quarter of sec. 33, 29-30.

Robie New Chief Of F-M Diesel Sales

Appointment of T. M. Robie as manager of the diesel sales division of Fairbanks, Morse & Co., has been announced by A. C. Dodge, vice-president in charge of sales.

Mr. Robie has been associated with Fairbanks-Morse since 1919, serving in the manufacturing and sales divisions. Since 1932 he had been in charge of diesel sales to resale manufacturers. Previously, he was associated with the New York branch office for one year and the Dallas office for two years and was employed at the factory on diesel engine designing, testing and building for nine years.

Upon his graduation from the University of Michigan in 1914, where he specializde in the study of internal combustion engines, Mr. Robie was employed by General Electric Co. on locomotive test and on development of high-speed opposed-piston diesel generating sets for stationary and diesel-electric railway locomotive application. He operated diesel power plants in New Mexico for two years previous to entering war service.

With his experience in the fields of manufacturing, operating and sales, Mr. Robie is well fitted to carry out the duties of his new position as manager of the Diesel sales division.

Net earnings of the petroleum industry in 1936 showed a gain over 1935, but return on invested capital stood at only 2.54 per cent.

New Emsco Slush Pump

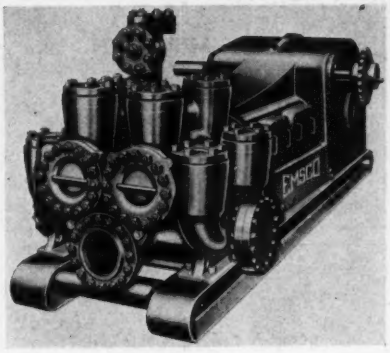
Emsco Derrick and Equipment Co., manufacturers of an extensive line of oil well drilling and production equipment, announces the Emsco Forged Steel Fabriform Power Slush Pumps. Thoroughly field tested, these pumps have proved their ability to withstand the severest continuous service encountered in modern deep well drilling with sustained efficiency and extremely low maintenance cost. They offer all the strength of steel construction without the hazards of steel castings or the usual fragility of iron castings. A tremendous saving in weight over the conventional cast construction is effected; and at the same time, greater strength than has been available heretofore in this type of equipment is attained.

Direct Flow Type

The fluid end is fabricated completely from steel forgings electrically welded and is of the direct flow type. One-piece or divided types of fluid ends are available. The power end is fabricated from structural steel shapes and plates, and cast alloy steel. The bearing housing for both shafts on each side are machined in a heavy alloy steel casting welded integrally with the frame. This assures an extremely rigid construction which, with a cross type of frame design, eliminates any possibility of weaving under load.

Positive Seals

An important feature of the new Emsco Power Slush Pumps is the positive system of mud exclusion from the crosshead chamber and crank case. The frame barrels are divided into compartments by forward and after partitions. The former is demountable and carries a renewable rubber bushing that closely fits the piston rod. Water flushing pipes keep the rod clear of any mud escaping from the fluid stuffing box. The after partition carries the demountable stuffing box for the crosshead extension rod and seals the forward end of the crosshead chamber against foreign matter. The heavy crosshead extension rod receives the fluid piston rod and permits the use of a short, less expensive rod. A steel and rubber baffle plate at the junction of the rods forms an additional obstruction to the entrance of mud. A sump at the after end of each crosshead chamber definitely stops the entrance of any foreign matter into the gear case, either coming from the fluid end or from the oil filler opening.



Power Transmission

Effective power transmission is provided by the pinion shaft, which transmits a maximum of 300 h.p. through 12″ face Herringbone gears to the main shaft. The pinion shaft is extended on both sides for prime mover pulley or sprocket, permitting power to be applied from either side. Eccentric type cranks of new design are fitted with one-piece bronze liners and the crosshead bearings are of needle-type roller construction. The entire gear and crank assembly is readily demountable from the frame without withdrawal of the main shaft.

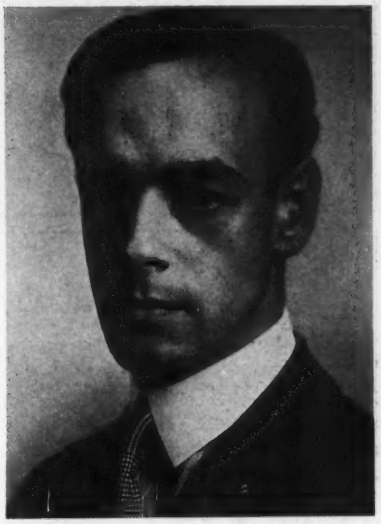
Additional features which distinguish the new Emsco Power Slush Pumps are: central lubrication of shaft bearings; complete and positive circulating oil bath for gears, cranks, crosshead slides and crosshead pin bearings; heavy duty roller bearings on both shafts; an improved method of holding liners in place, which assures positive positioning of liner without the use of bolts or studs and which, also, readily unseats the liner for removal, eliminating the necessity of a liner puller; renewable crosshead shoes, as well as top and bottom guides in which they travel; and combination 10-inch double side and end suction.

Specifications

Built to withstand 6000 pounds actual test pressure, these pumps are recommended for 3000 pounds working pressure with 300 h.p. input rating.

General specifications are as follows: size (bore and stroke) 7¾″x16″; gear ratio, 4.77:1; height from floor to center of discharge, 60″; height from floor to center of suction, 14⅜″; height from floor to top of gear case, 6′2″; overall length, 14′10″; width over frame 49″; overall with (except pinion extension), 57″ weight with steel skids, 22,000 pounds.

Shell Appoints Guepin Executive V-President



Appointment of F. A. C. Guepin as executive vice president of Shell Oil Co. was announced today by S. Belither, president.

Mr. Guepin comes to San Francisco from New York. His residence here adds to the Bay region's permanent oil executives a man who has been thoroughly trained in petroleum production and marketing throughout the world. In addition to his knowledge of the American oil business, the newly appointed Shell executive has had experience in other oil producing countries whose policies and production have a vital influence on the American industry. He has been actively engaged in the world movement for the conservation of petroleum resources.

Get Small Pumper Near Edison Field

Near Edison, the Westbrook Co., operating in sec. 4, 30-29, bottomed No. 1 well at 3557 ft., cemented 6⅝-in. water string at 3485 ft. and completed on the pump with initial production of 70 bbls. of 16 gravity oil with a water content of 30%.

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No. 60 Armstrong All-Steel 3000 ft. Cable Tool Band Wheel Drill. 100 h.p. Gas Engine. 60 ft. Pat. Wire Line Derrick. With Tools. Subject inspection. $3000.00 as is where is, Grants, New Mexico. The Kaufman Co., 2020 Sacramento St., Los Angeles. I-20-B

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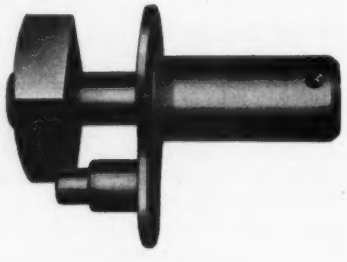
One 5 x 10 Worthington; one 12-P Wilson Snyder 5 x 12; one Gardner-Denver 6¾ x 12. These power pumps are in A-1 condition and are practically new pumps. Also one Western Gear Power Take-off (reduction gear), 100 H.P., 400 R.P.M. Also one 6 cylinder, 625 cu. in. Type 6RB Waukesha gasoline motor in good condition.
Pacific Oil Well Cementing Co., Ltd.
Los Angeles
Telephone: JEfferson 6171 tf/b

Well Pumping Safety Crank Pin

Production Equipment Company, 651 East Gage Avenue, Los Angeles, is now marketing the Heaston Safety Crank Pin. This item is an improved wrist pin for attaching the pitman to the crank arm used in pumping oil wells and prevents the pin from turning in the crank hole. It is designed to fit any type of crank arm, and has a second crank-end pin attached to the flange that separates the crank-end from the bearing end of the wrist pin. The second pin is spaced so as to pass through a hole in the crank adjacent to the hole in which the primary pin is placed. The two pins effectively prevent any rotation of the crank pin, thus insuring that the enlarged bearing end of the pin will take up all wear occasioned by the movement of the pitman.

An important safety feature is provided by the safety screw which is inserted in the end of the secondary pin after the nut has been set up on the main pin. The safety pin prevents the nut from unscrewing and removes the danger of the crank pin becoming loosened from the crank.



Before the Drake well was drilled, illuminating oil was distilled from coal in a few small refineries.

Way back in 1803 General Hays cornered the petroleum market for the first time by shipping the entire seepage production of the Franklin, Pa., district, 16 bbls., to Pittsburgh. He sold it for $1.00 per gallon!

1850 9240